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"Salvation of India lies in Cottages."
—*MAHATMA GANDHI*

FACE REALITIES

THE reverses in Kerala, Maharashtra and Orissa and declining power and prestige of the Congress in Uttar Pradesh and some other States of the Union have compelled the Prime Minister to be introspective about the serious lapses from which the Congress and the Congress administration suffer. These incredible lapses, particularly those in the sphere of administration were brought to the notice of the Prime Minister by a large number of members, who had lately participated in the Congress Parliamentary party meeting at New Delhi to review the results of the last elections. As reported in the Press, the Prime Minister was unusually frank and outspoken about these lapses to his colleagues and stated,

"*that the anti-Congress vote reflected discontent with local matters, local issues and a host of irritations caused by the non-implementation of broad policies and an inefficient and to some extent corrupt administration at the district and village level.*"

All these are symptoms of mal-administration from which the country suffers and which, in the opinion of the Prime Minister, are reflected in the anti-Congress vote in the last elections. He felt greatly distressed and emphasised on his colleagues the need of giving better and cleaner administration to the people "*if the congress is to retain its hold on the masses and not be swept out of office.*" He was surprised at some of these astounding disclosures brought to his notice by some 20 Congress party members when, he is reported to have stated :-

"In one instance, it was pointed out that the member came across hundreds of cases wherein the lagaan (land revenue) was charged on some one other than the person actually owning land. Again, almost two years have gone by and no compensation had been paid to hundreds of villagers whose lands had been acquired for digging canal.

"Instances were also narrated to show that the officials at the village level were so many small Moghuls, while Panchayat Sabhas and district boards were dictatorial juntas. And, what was worse, there was no easy way for the aggrieved parties to secure redress. Often villagers had no alternative but to play up to corrupt Patwaries and others. All this inevitably created discontent which was reflected in the anti-Congress vote."

The picture of mal-administration and corruption that prevails in the country and as presented by the Prime Minister in the two paragraphs quoted above is only too true. But what is the remedy for it is a pertinent querry which has remained unanswered by the leaders of the Congress in authority all these 10 years of national administration. Action and drastic action which alone could cure the evils of administration and improve its tone and efficiency has been lacking throughout. The downward trend in administration with mounting public discontent and chances of the Congress "being swept out of office" at the end of the next five years, therefore, continue unchecked.

We regret, we do not see much substance in the remedy suggested by the Prime

Minister to cure these administrative ills when he is reported to have said :—

"One way of doing this was for Ministers in various States to come down from their ivory towers more often to understand and appreciate the difficulties and problems of the common-man. These Ministers should visit the villages and towns as one of the people without the pomp and splendour of liveried Chaprasis and a truckload of security guards".

It is rather putting too high a premium on the patriotism, talent and capacities of our Ministers in States to visit villages and towns with a view to understand and appreciate the difficulties and problems of the common-man, which the Prime Minister expects them to do. What we have observed during these many years in different States is that a majority of these Ministers do not seem to be actuated by any altruistic motive of trying to understand and appreciate the difficulties and problems of the common-man. Rather they seem to be worried by their own personal problems of remaining in power under various strains and stresses and making the most of it for personal advantage or for the benefit of those who are near and dear to them.

A Minister with a living interest in the efficiency of administration and a consecrated 'will' and desire to serve and benefit the people is a rare phenomenon and may only be seen somewhere. The present day Minister in a State happens to be there more often to minister to his own needs and not to those of the people for whose sake he holds the office. And, he is mostly wanting in talent and capacities to understand the various problems of the people to be able to apply effective remedies towards their solution. He is rather at the root of the present inefficiency in administration and not the fountain-head of efficiency and incorruptibility which the Prime Minister presumes him to be.

Wastage of Public Money

In the course of the party meeting some members had criticised the wastage of funds on N. E. S. Blocks and Community Projects in reply to which the Prime Minister is reported to have stated :-

" It was true that money had been wasted in some areas, but the experiment was certain to revolutionise the countryside. "

The Prime Minister, it seems, labours under delusion if he believes that the experiment of the Community Projects and the N. E. S. Blocks is revolutionising the countryside and little wastage of public funds, therefore, is immaterial. It is nothing of the sort. The so-called revolution in the countryside which is so much talked out from places of authority and particularly by the Prime Minister is just the opposite of what a revolution should stand for. All this wastage of money is not sowing seeds of revolution in the countryside, as is fondly hoped by the Prime Minister but it is demoralising the people by its improper and misuse. Hardly 50% of the money allotted by these Projects for various development works is spent in actually executing them and the rest finds its way into the pockets of programme executors and concerned officials.

Some little activity, which on occasions of visits of important personages may be expanded into a 'grand show', is always possible where huge sums of money are spent by the government. But misuse or improper use of money which is producing corruption and demoralisation among the people can by no stretch of imagination produce silent revolution, which the Prime Minister is pleased to call it. And, what people call wastage or demoralisation cannot be the same thing as revolution.

Corruption in Administration

In his address to the Parliamentary Congress party, quoted earlier, the Prime Minister has emphasised the need for cleaner and less corrupt administration. The extent of corruption in administration which is greatly hampering the progress of the country could only be realised by those

who have to deal with government machinery. Mr. Charles A. Wells of Newton, Pennsylvania (U. S.), who had spent sometime in India, thus wrote in his independent bimonthly newsletter "*Between the Lines*":

"Corruption in Government greatly handicaps Indian progress. An engineer – manager of a large foreign Company which has operated extensively in India for many decades told us that his Company has often been compelled to add 50 percent to cost estimates of its works to allow for bribes and gifts to Government employees with whom they must deal. Since India has Semi-Socialist Government, the State is associated in many business activities, thus few Companies large or small, can operate without having to work with or through Government agencies; and in certain areas of Government bureaucracy, nothing can be done till you 'grease the right palms'. The depressive effect of this on Indian business is incalculable, and is linked with the corruption that flourishes in the Indian Government's five-year programme. Construction work contractors, construction firms and engineering concerns fling up new millionaires over night, while the people remain as poor as before."

It is not only the Indian business that is feeling the depressive effect of corruption in government departments but all other classes of people including agriculturists are equally well exploited and victimised by the corrupt officials and nobody knows whom to approach to check this rot. The magnitude of the evil has increased to such an extent after independence that even the Prime Minister, who, of all people should put a stop to it, does not see his way clear as to how to check corruption in administration of which he himself happens to be the head.

Years of Crisis

We had already stated in these columns in the previous issue of 'Rural India' that the next few years will be a difficult and critical period for the Indian nation. As a result of the canker of careerism and profiteering that has entered into the Congress organisation after independence, large masses of people have already lost confidence in its capacity to deliver the goods. In fact, its career as a ruling party has been one of failure throughout these 10 years. A stage seems to have now reached when the organisation is very nearly in the process of disintegration and ultimate extinction. Obviously such a fate of the premier political organisation of the country is causing a good deal of worry to Pandit Nehru and to the Congress President Shri U. N. Dhebar. The dark shadow of the future of the Congress seems to have begun to haunt the Congress President, when he has warned the Presidents and Secretaries of Pradesh Congress Committees on the lessons of the last elections and said :—

" A party which is not prepared to subordinate considerations of comfort and career must be prepared for ultimate extinction. Dynamism or vitality and comfort or career go ill together.

" Something has happened to the Indian National Congress since Independence. A feeling is slowly but imperceptively creeping into the minds of the people that we are shirking our responsibility. No wonder people are getting away from us. We have to train our workers to shoulder that responsibility. It is not that we have to fight Communists and Jan Sangh alone. We have to fight slothfulness in the organisation and the careerist. The Congress has a lot of careerists. Even before the leaders' elections are held, M. L. A.'s come in search of ministerial posts. As Panditji said the other day, the next two years are going to be years of crisis for the organisation."

All we have to add is that the 'Crisis' that is ahead will see the collapse of the Congress organisation and emergence of new political party and leadership, which alone appears to be the hope of this country and which was already suggested by the Father of the Nation shortly before his departure from this world.

NOTE

REORIENTATION OF DEVELOPMENT PROGRAMME

ONE Block Development Officer from Punjab who is not satisfied with the working of the Community Development Projects and the N. E. S. Blocks and who feels the necessity of reorientating the programme of development sends us a note embodying his suggestions for publication which, of course, are worth consideration and adoption by the officials and workers connected with development programme. The note runs as under :—

"The main problem facing the Development Department at present is, "How to bring about a Real Development?" Can the literal achievements of physical targets fixed under the programme of N. E. S. and Community Development blocks and projects be termed as 'Development' in the real sense of our objectives?

"These projects and blocks in Punjab have been and are started haphazardly on political considerations without creating essential conditions for them and that is why at the end of the first five years of the *Community Development Programme the achievements can in no way be said to be lasting and expanding.*

"Adoption of the improved and scientific technique of agriculture by a few farmers without a wholesale and substantive march by the small and big cultivators alike for progressively increased production of yields under all sorts of conditions; inducement and help to only a few for cottage and small scale industries without a comprehensive plan to do away with unemployment and under-employment; stress for increasing income without creating inclination for better living; education of a small number of children of both sexes in villages in a planless manner; absence of any prospects of employment for the educated village youth; insignificant education of a few adults here and there without a drive to wipe out illiteracy of the adults of both sexes and kindling in them a flame for knowledge and learning; introducing improvements with benefits to none and promoting sanitary atmosphere without creating an urge for healtheir and happier life; organisation of cultural programmes simply as a pastime without creating cultured taste; and lastly extracting all sorts of subscriptions and taxes without producing regular and permanent increase in the income of rural people and a sense for saving and a will for giving contributions for mutual benefit, cannot by any stretch of imagination be termed as real Development.

"It is never too late to mend. It is better to go slow than to leave gaps like uncovered wounds which may become septic afterwards. The implementation of development programme in the country has this serious defect as there is concentration on only a few villages in a block leaving the rest to follow. But those left out never follow and drag others to their own fold.

"The haphazard starting of blocks must stop atonce. Blocks in future may be started in contiguity with the old and existing blocks, after due preliminary survey and consolidation of holdings.

"Thus, there must be expansion covering the country on all sides systematically and in a well-planned manner. Advantage of immediate experience in old blocks, their skilled

personnel, equipment and guidance be taken in addition to some further attention to the programme gone through in old blocks. The idea of felt needs should vanish as "Needs" felt by a few, may not be the felt needs for others, but a set standard for all-round development be fixed for each village, as well as for a block and the same must be achieved. This necessitates the formation of village plans with special emphasis to increase local finances, and drawing out of programmes based upon schemes to be executed on State-level, district level, block-level and village-level. The schemes must run concurrently and simultaneously covering the whole area gradually and leaving no time-gap The present non-alignment of programme at different levels and the excuse of limitations must go. The budget provisions for each block should, therefore, be based upon the above assessments.

"The schemes requird to be tackled at various levels can be classified as under :—

A-State-level Schemes : Major Transport works, major irrigation works including installation of tube wells, provision of power, consolidation of holdings, establishment of capital and large scale industrial concerns, large scale health institutions and arrangement for higher and technical education.

B-District-level Schemes :—Promotion of local transport facilities by means of inter-connecting and exposing roads, large scale drinking water supply and immediate health facilities, promotion of marketing facilities, encouraging secondary education and medium technical institutions, setting up of maternity and child welfare centres and mobile health units, etc,etc.

C-Block and Village level schemes :—Development of approach and link roads, increased agricultural production per unit area, reclamation and extension of minor irrigation facilities, village self-sufficiency as regards seeds, fertilizers, manures and implements etc. etc., co-operative credit and marketing, better cattle breeding, primary and middle education with a bias for crafts to all children, complete wiping out of illiteracy and imparting of knowledge by audio-visual aids, overcoming unemployment and under-employment by introducing cottage and small scale subsidiary industries, establishment of village co-operative institutions, promotion of all local health and sanitation shemes, recreation and cultural development and special stress on village common finances.

"In brief, after an extensive and intensive programme a block should certainly be better in every respect and the people in the block must feel and enjoy the real change".

We agree with the substance of the views expressed in the course of the note by the writer and have no hesitation to add that the present haphazard and unsystematic development programme in the country does not promise to produce lasting and worth-while results. It is more in the nature of a 'show' rather than solid basis for real and permanent development.

All-round development of village life and conditions, which the note suggests, is a long-term programme—a work of generations. The party that rules the destiny of the country at the moment wants quick and speedy results to help them to win over electorates and to retain power for themselves. They do not seem to be concerned with lasting and permanent results for the nation. However, many of the suggestions contained in the note will go a long way in giving method and system to development programme if adopted by the Project and Block officers for whom they are primarily meant.

LAND REFORMS IN INDIA

By: **T. R. DEVARAJAN**

LAND Reforms in India constitute a socio-economic revolution through peaceful, democratic and non-violent methods. The broad principles guiding land reforms legislation in various states are in accordance with the Directive Principles of State Policy as enunciated in the Republican Constitution of India and the objective of a Socialist Pattern of Society. The basic concept of all land reforms is to improve the lot of those cultivators whose legitimate rights had not been so far recognised and to provide incentives and opportunities for better cultivation and higher yields. The significance of land reform programmes need not be overemphasised in a country like ours, where the problem of making two ears of corn or two blades of grass to grow upon a spot of ground where only one grew before is an urgent one. The objectives of the land policy are : (a) augmentation of agricultural production by a better system of land management; (b) reduction of inequalities in wealth, income and opportunity; (c) diversification of the agricultural economy to ensure a much higher level of efficiency and productivity; (d) provision of security for tenants, including opportunities for them to become owners of the land they cultivate; (e) improvement of the position of agricultural workers; and (f) in general, the raising of living standards in rural areas.

The land reform programmes which the various State Governments have undertaken fall under four broad heads, namely, (1) abolition of intermediaries, (2) tenancy reforms, (8) fixation of ceilings on holdings and (4) reorganisation of agriculture. These broad principles of land reform have been suggested by the Planning Commission and details of application are being carefully worked out by the different states with variations to suit local conditions and needs, as land tenure conditions differ from State to State. Under the Indian Constitution, land reform is among the legislative fields reserved to the States and is not a subject of federal legislation.

Zamindari Abolition :—In many parts of the country, semi-feudal conditions had prevailed, the land being owned by intermediaries between the State and the actual tiller of the soil. Obviously, the abolition of intermediary rights was the first and inevitable step in the right direction. By and large, intermediaries have been eliminated from the Indian rural scene in all parts of the country by legislative enactments. The implementation of the legislation has by no means been easy. Constitutional and legal objections were raised by the landlords against the validity of the Acts for the abolition of their rights in land in different states from time to time. Article 31 of the Constitution, which provides for compensation in case private property is acquired by the State, had to be amended to remove the legal flaw. Even the validity of the amendments was questioned. Finally, these were declared valid by the Supreme Court in 1951. Compensation is calculated on the basis of 'net income' or 'net assets' or 'Basic annual sum'. In certain states, in addition to compensation, rehabilitation grants are given to the intermediaries in the low-income groups. Compensation is payable in cash or in bonds or both. The bonds are redeemable in periods varying from 10 to 40 years. The method of payment depends upon the amount of compensation and the resources of the State. To remove the hardship to the outgoing proprietors, owing to delays in the assessment of compensation and the issue of bonds, most of the states are paying interim

compensation. Zamindari abolition is expected to be largely self-finacing over a period of years, in that the anticipated increases in land revenue and advance rent collections would suffice to meet annuity liabilities. Thus the elimination of intermediaries is a far-reaching change of lasting social significance and economic value in rural India.

Tenancy Reforms :—Tenancy reforms have been designed to (a) scale down rents to one-fourth or one-fifth of the produce; (b) give tenants permanent rights of occupancy subject to the landlord's right to resume a minimum holding for his personal cultivation within a limited time, and (c) enable tenants to acquire ownership of their lands on payment of moderate compensation to the landlord spread over a period of years. The limit of area which can be resumed for personal cultivation is fixed at one family holding subject to a minimum area being left to the tenant. A small owner should be permitted to resume for personal cultivation one-half of the area owned by him but not less than a basic holding, that is, the minimum area neeeded for profitable cultivation in conformity with the legislation relating to the prevention of fragmentation. Where, as a result of such resumption, the holding of the tenant becomes smaller than a basic holding, the Government should endeavour to find land for cultivation so as to bring the tenancy to the level of a basic holding. This will be facilitated to some extent when land in excess of a ceiling becomes available. All tenants of non-resumable areas should be brought into direct relationship with the State. The State should undertake the obligation to recover fair rent and pay it to the landlord after deducting the cost of collection. State Governments may buy the landlord's interest in the non-resumable areas on payment of compensation in the form of bonds redeemable over a period of 20 years. The tenant's liability to pay fair rent should continue so long as it may be necessary for enabling the State Government to meet the liability for payment of compensation. Each State may specify, according to the conditions in the different regions, classes of soil, irrigation, etc., the area of land which may constitute a family holding.

Ceilings on Holdings:—The fixation of ceilings on agricultural holdings as an aspect of land reform has attracted considerable public attention and controversy. The recommendations of the Plan in this respect are: (1) there should be a limit to future acquisitions of land; (2) there should be an absolute limit to the land which any individual may hold; and (3) as an interim measure, each State should enact land management legislation by prescribing the standards of cultivation and the obligations to be observed by all landlords, setting up the necessary machinery for taking over of farms above a certain limit, provided that its break-up would not lead to a fall in production and settling landless agricultural workers in cooperative groups or otherwise.

The question is often raised why there should be a ceiling on land in the absence of a ceiling on all incomes. The answer is that land, in an old and thickly populated country such as ours, is a much sought after and non-reproducible instrument of production. In other words, it is a scarce natural resource. Ownership and cultivation of land determine the economic and social relationship within rural society. There is therefore a strong case for regulation of land ownership, tenures and land utilization. A ceiling on land is not primarily a device for limiting incomes. It is in reality an attempt to see that this scarce factor of production is not monopolised by a few. Of course a landholder can have other assets, say, a house or Government bonds or industrial shares. What is sought to be limited is his landholding, not his income in the aggregate, though undoubtedly, ceilings on land have a direct effect on income. Large holdings in India are relatively few, but they account for a considerable proportion of the total arable land. This disparity cannot be justified when there are large numbers who have less than a basic or minimum holding and others entirely without land.

Regarding the argument that along with a ceiling on land holdings a ceiling should be imposed on urban incomes, one can accept the principle behind it. But different means will have to be employed in the case of urban incomes. A limitation on income through ceilings on all property is not practicable under the present circumstances because the payment of compensation will be an additional strain on the finances of the country. Action has therefore, to be limited to fields where it is urgent in the overall social interest. Nevertheless, removal of disparities in income and wealth all over the economy cannot and should not be safely delayed any further. Man will not give of his best until structural relations in society conform with reasonable standards of equality. Hence ceilings on landholdings is a special case in which action is justified apart from the general issue of ceilings on incomes.

Conclusion:—On the question whether the implementation of the various land reform measures in different States has led to an increase in agricultural production, expert opinion based on a scientific study of facts is yet to be expressed. It is too early to assess the economic consequences, much less the social effects, of these legislative measures which are in the process of implementation. During the transitional stages, there are bound to be dislocations in the structure of the rural economy which might have an adverse effect on agricultural production. But that will only be a temporary phase but not a permanent feature of the economy. With the completion of comprehensive land reform measure in all the States and the introduction of better techniques and improved methods of cultivation and Community Development Schemes, the objectives of increased agricultural production and the prosperity of the countryside will become a *fait accompli*.

Administrative, technical, political, social and financial difficulties stand in the way of land reform programmes in our country. Shortage of trained personnel, absence of reliable statistics, lack of a desire among the rural community to better their lot and the financial burden imposed on the States are some of the major obstacles both to agricultural development and to the successful implementation of land reforms. But these obstacles have to be overcome and they are not insurmountable. Democratic Planning, like Democracy itself, is an exciting adventure. The vastness and complexity of the problem of agrarian reorganisation poses a challenge to the reforming genius and practical wisdom of the Indian planners. Nevertheless, these land reform measures should be pushed with vigour, for the reform of the agrarian structure is fundamental to the well-being of our peasantry. And there are men for the job and the work will be finished.

Critics of land reforms in India may be classified under two categories (1) the conservative school and (2) the revolutionary school. The conservatives consider the land reform policy of the Government as revolutionary and regard them as doctrinaire proposals based on ideological considerations. Whereas the revolutionary school of thought maintains that the land reformers are conservative in outlook, that their proposals are halting, that they are afraid to go too far on the road to socialism and that the progress attained is very slow.

The effort must be judged only in relation to what needs to be accomplished and the country is confronted with tasks that are unprecedented in their magnitude and content. If we fail to accomplish them, forces that are more dynamic or merely destructive will gain the upper hand. The only relevant question is, therefore, whether this is the most that can be done. A quicker pace or a more radical content would necessitate the abandonment of the democratic process, for which we as a democratic nation are not prepared. Moreover, the eyes of all the countries of the world are on India watching her infant democracy at work. Our energies, therefore, are, naturally, directed towards making the Indian experiment, and from the standpoint of magnitude, the greatest democratic effort in Asia, a success. Hence the need for a cautious approach and a policy of compromise on the part of Indian Planners.

To conclude, judged as an attempt at democratic and peaceful change and the improvement of socio-economic conditions within agriculture, what is being undertaken in India has few parallels in history.

INDIAN 'ECONOMIC' AND AGRICULTURAL 'ECONOMIC' CONFERENCES

By: **MAHESH CHAND**

THE economists gathered at Cuttack recently realised better the importance of the question "What is the ultimate objective?" This is interesting when we know full well what is already laid down in the Constitution and what the Prime Minister and Planning Commission have said in the past. Whether it was the question of "Trends in Urban Developments in India" or "Theory of International Trade and Domestic Relations" or "Patterns of Employment of hired labour in Agriculture" or even "Effectiveness of legislation for security of tenure", the question continued to come up. They would end by referring to it. It might be Dr. X now, Y next, Z a third time, but the audience was continuously reminded of the need for an integrated approach - of a global analysis - and not partial analysis, nor piecemeal solutions.

Another important point is that both the economists and the administrators were one in mentioning that the administrative machinery - which was modelled more for *police-raj* rather than for a dynamic constructive role - needs reorganisation.

A third point was the realisation that monopolistic competition or competition between countervailing powers was not helpful: that socialism is in the ultimate analysis based on social attitude and social fervour - social and moral values, which, it should be the aim of all organisations-governmental, political and even Bhoodan-to initiate and build up. For without it planning and no amount of legislation can succeed.

Frankly speaking, there was evident to the discerning eye an ironical welcome to the statistical group. The Presidential address at the Indian Economic Conference made a mention: "We have indeed to make much more progress before we can appeal to statistics for anything more than illustrative purposes. Even in the most favourable circumstances, the available statistics disclose such gaps that their practical use could hardly be entrusted to inexpert or uncritical minds." It is high time that statisticians do some real appraisal of their surveys as a source of economic data: they must give evidence that their work does never have within it any vestige of false pride and prestige.

It seems economists also have to do something. It will be wrong to hold that economists, teachers, lawyers and the like can contribute little to the creation of social values or that by profession they cannot do so. It is wrong to decorate their conferences with At Homes and urban and cultural visits to the exclusion of economic-visits. Thus why should the agricultural economists not have gone out to some village and seen first hand conditions there? Though it is a very minor point, it does not behove some elder members of economic associations to stay away from where the majority of members stayed. We know educated men would not mind these but they must realise the need for demonstrating that they practise what they preach. If economists are really out for the common man, they must live like the common man. If they advocate the development of small scale and cottage industries, they must patronise these industries. They must not think that mere words of mouth are enough: nor that beyond the words they have no effective role.

Urban Development Trends

During the discussion of Urban Development Trends the point came up that greater

a city, greater is the rate of development. If, therefore, we want to escape the evils of densely populated cities, such as slums, housing shortage, juvinile delinquency, crimes, trafficking, and disintegration of migrant families, we must develop non-agricultural activities in a dispersed manner. No amount of studying and influencing rural-urban migration is likely to be of help when any urban city is a plural society-with differences of tastes, habits, living and worship-and not a community. Incidentally, a majority of Indian towns are of the administrative type and quite a many of them are due to the river transport being replaced by road-rail transport. Finally there was a question: Is it correct that during the last twenty years real income in urban areas has decreased as in Poona, though in money-terms, it appears that urbaners are better off. The various socio-economic surveys, that have been held under the aegis of the Research Programmes Committee can perhaps provide an answer.

Theory of International Trade and Domestic Relations

Arising out of the thirty-eighth Presidential address of the Indian Economic Conference, there was a detailed examination by many students of economics of the applicability of the theory of international trade to domestic economic relations. They refused to reject the applicability of the theory merely on such grounds as are indicated below :—

1. Rural and Urban areas are not political entities and it is trade between political entities that the theory of international trade explains.

2. In domestic relations we have a central government and central grants to redress the inequality of resources and opportunities in different states.

3. Domestic relations are characterised by a great deal of mobility of capital and labour, particularly among the upper income groups.

4. Domestic relations are served by All India Services, e. g. Post Office, railways, banking and insurance.

5. There is nothing like currency-exchange-rate in domestic trade: there is just one currency.

6. There is a unilateral transfer of funds through the State remittances and banks.

7. Infant industry argument goes by regions, while in the case of rural-urban relations it shall have to be by commodities.

While the applicability of the tools of analysis to domestic relations was upheld there did arise the emphasis on the need (a) to plan internal trade on the basis of assessed needs and assessed surpluses or potential surpluses of different areas, and (b) to consider whether the tendency of the backward (rural) people to imitate the standard of living of the advanced (urban) people should be allowed to continue.

The Kaldor Report

Discussions on the Kaldor Report of Tax Reforms in India were not centred about the capital gains tax and the expenditure tax only. They went beyond, and tried to see the desirability of mopping up purchasing power with the public and channeling it through the State in case it was going to help better allocation and utilisation of resources. Some of them considered that there was a capacity-limit already reached but the realisation was that there are no such limits provided the expenditure by the State is going to benefit the society more than the disutility arising out of taxation. Kaldor's proposals were to be and actually were appraised as a whole and there was nothing disturbing about them except (i) an ethical consideration arising out of the need to probe deeper into private purse (and living) and (ii) the practical administration aspect. Only one wishes that it was also realised that the fundamental need is to mop up real resources and that

it is desirable to effect it on a decentralised basis through a system of levy in kind. particularly in the rural areas. The need to nip 'inflation' calls for the need to nip money reaching in the hands of those whose propensity to consume is high. Collection in kind and part-payment in kind appear to need to be stressed.

Effective Land Legislation

The problem of "Objectives" was more explicit during the discussions at the Agricultural Economics Conference. Screening the land tenure position in the different States the point clearly precipitated whether we want (a) personal cultivation, (b) cooperative farming, (c) more production whatever the system of farming and employment, or (d) land, however small in area, for every man who asked for it. Even Government-men realise the undesirability of the Do-not-know-my-mind attitude. Rather one could read an element of "frustration" cum "why bother" element in the Government-men's minds and this is most dangerous. Politicians would do well to note this. And what do we mean by personal cultivation? Can it be that the Madras Government is right in defining it as implying "physical labour by cultivator (and family) *without* any hired labour" and would it be practicable to enforce such a definition in practice? Or, would it be more appropriate to define personal cultivation as that in which the man normally takes a leading part in the major operations of agriculture and arranges for capital.

So too the topic "pattern of employment of hired labour" brought up the realisation that hiring of labour is not a sin but hired labour must not be "unfree" labour, and that unfree labour does not mean only "daily wage" labour as is the sense behind agricultural labour enquiry in this country. If we do not resolve the very backward conditions by bringing about a social upsurge and a change of attitude, things will change slowly but surely, just as the *Kothiyas* and *Begarwala* share-croppers in Orissa. Oriya labour is converting itself into *Moolyas* (free) labour. The economists realised that there is need to reassert the moral value and to prepare the background for legislative changes through a multiplication of such movements as the Bhoodan movement. Only one wishes there was also the realisation of the need (i) for more Vinoba Bhaves and (ii) for more economists to serve as social leaders as well by giving up conspicuous living.

ADMINISTRATIVE PROBLEMS OF PLANNING

By : **Prof. S. V. RAMAYYA**

IN recent years the government's function in the economic and other fields has expanded phenomenally and the administration has to bear increasing responsibilities unheard of before. If we have a vigorous and responsive administration applying itself whole-heartedly to the functioning of planning and other aspects, the fruits of benefit can be reaped by the people in a short time and with less burdens. Good administration is essential to good government. It has been found that bad adiministration leads to the overthrow of stable governments and may be fatal to the nurturing of democratic values in various countries. In this article we propose to deal with the tasks which administration has to face, and the reorientation of the present procedure may become necessary in view of the changing concepts of the function of the State.

"The expression administration steadily assumes a broader content. It includes within its scope the building up of

personnel, training of men, running the administrative machine, seeking the co-operation and participation of people, informing and educating the public and finally organising a sound system of planning based as much on the participation of the people at each level as on the best technical, economic and statistical information available".

What is very important in administration is honesty and integrity. Corruption leads to many wrongs and ultimately leads to collapse of the government. The case of the Kumingtong regime in China is a clear evidence of this. How are we going to check this corruption? When moral values have fallen low the evils of corruption raise their head. This is a broad statement which holds good. But the immediate task is to reduce the opportunities of corruption. At present we find gigantic dams, steel plants and other buildings and construction activities going on, involving fabulous amounts. Naturally such large expenditures afford opportunities for corruption.

Corruption is a two way traffic. The creation of vigilant public opinion and the exposition of corrupt officials and wide publicity will certainly check the growth of corruption. Vigilance on the part of the superior officials for checking the expenditures of various items is equally important. Surprise inspections may also lead to fruitful results. Now-a-days the government servants are asked to submit a yearly account of their assets and any wide discrepancy between their assests and income has to be explained. Those officials who are suspected of corruption are being retired compulsorily. The appointment of special tribunals to try cases of corruption is also a welcome feature. But we hold that these measures by themselves do not produce favourable results. A revulsion to all that is evil and an abhorrence of all malpractices on the part of the people may be necessary. Any misguided sympathy may lead to the undermining of the moral foundation of the society and weakening of the social fabric. The creation of right climate is vital. "To develop the right climate of public opinion, it is necessary that the methods adopted by corrupt persons should be fully exposed. Publicity should be given to the rights and duties of citizens and instances in which corrupt men are brought to book should be made widely known."

It is a recognised fact that for the successful execution of programmes and plans competent technical personnel are needed. In our country as we are having the socialist pattern of society as the guiding star, the state has to take upon itself increasing responsibilities for the starting of new industries and for the execution of various projects and construction works. What we require immediately is efficiency and economy in the running of enterprises. And these can be realised to a sufficient degree when we can create autonomous bodies with sufficient powers and discretion. "Pnblic enterprise must be judged solely by the standard of efficiency, which implies in respect of every unit of production of goods and services, minimum cost and requisite quality".

Rightly Mr. A. D. Gorwala observes, "A public enterprise has to live in the fierce light of publicity. Not only is the consumer concerned with it, but also, since it is the property of the nation, the tax payer, the citizen, the government, all regard it as worthy of notice and are anxious to know its working and its results". In the light of the above statement it is clear that these autonomous bodies created for purposes of running the enterprises should be given full discretion and powers without the intervention by government. It may be necessary for the government to lay down policy, fix the targets and the standards expected and it may also insist that the work must be done within the time fixed.

When once these conditions are laid down the autonomous Board must be left with the day-to-day running of the enterprise. Dr. Appleby remarks, "There is no danger whatever that grant of power to Indian enterprises will be too great. On the contrary, the danger is that the government and Parliament will be much too fearful and will grant insufficient autonomy".

At present we in India are having separate managements for each State enterprise. Dr. Appleby as well as Prof. Galbraith does not favour this type of arrangement or organisation. It is better that the total number of enterprises separately managed be small so that government can deal principally with consolidated reports. We may group together a number of industries under one corporation e. g. all the fertiliser plants may be under one corporation, so also all steel plants.

Another defect in the present practice of spending is also noticed. Under the present system even though parliament has voted the expenditure for a particular department, the spending department must obtain the sanction of the Finance Ministry for individual items of expenditure as they arise. Further the Finance Ministry's approval is necessary for reallocation for a particular programme. These two cases do not serve any purpose except delaying the execution of a particular work or hampering the initiative of the people on the spot. We agree with Dr. Appleby that once the Ministry of Finance has previously decided broadly how much of the government's limited funds can be made available for a particular programme, the programmatic agency should have wide discretion in the deployment of all these already pre-determined funds. "If the Agency decides that something not planned for in its original budget is more important to the programme than something that was provided for, it should be allowed to shift the funds earlier provided to the new activity. Much more will be saved by forcing agencies to re-examine their own priorities in this way than is saved under the present method; programmatic responsibilities will be heightened and action will be expedited."

Another defect that has been pointed refers to the over working of the key personnel in the prosecution of projects and running of industries. Organisational performance is singularly lacking, "It puts too much reliance on a very small number of individuals, whereas for a much greater achievement, reliance must be on a greatly improved organisational performance of systematic character". We agree that the governmental activities are growing in size and rapidly and this calls forth creation of proper system where organisational performance is more important. The organisation must be able to create new people who can bear heavier responsibilities.

Sometimes we find inefficient people occupying responsible positions and getting rapid promotion, whereas efficiency is punished by not recognising it. Refusal to recognise merit and reward it and promoting inefficient people on the basis of caste, communal or linguistic considerations may ultimately prove fatal to the progress of the society. Mr. W. Brooke Graves in his book on public administration in a democratic society writes, "The need to discover, encourage, develop, and promote those individuals who possess this almost priceless gift of being able to inspire and lead others, those who know how to induce others to work with them, to co-operate for the attainment of the objectives and purposes of organisation is great. Our present inability to solve this problem represents the greatest single weakness of present day administration. For every good leader that chance turns up, several poor ones are promoted, meantime plowing under or discouraging by assignments to subordinate positions, countless others who are or

who could be developed into competent leaders".

This problem naturally brings forth the importance of proper selection of personnel for various branches. Selection is an art and the appointing authority should be able to size up individuals to evaluate their education, experience, qualifications in relation to the requirements of particular jobs. This cannot be done on the basis of favouritism or hunches. We are unable to view with favour the present importance given to interview over various other attainments, in the selection of personnel to man administrative jobs. No doubt interview test is important but not for all jobs and for all purposes. "The sizing up of an individual" within a few minutes cannot be always accurate, human judgement may err gravely and sometimes "the Interview test" may be a means to bring through the back door undesirable candidates.

Once the selection is over and appointment made, the person must be able to develop certain qualities necessary for leadership. An enterprise or a governmental department can function best only when the person-in-charge is able to inspire the subordinates to higher activity and greater efforts. Marshall E. Demock wrote, "The executive who is reluctant to allow his subordinates full growth for fear they will rival and possibly displace him is unfit to be the head of any organisation. The executive leader does an outstanding job only when he nurtures the largest possible crop of individuals qualified for the greater responsibilities and for more normal and more satisfied personal experiences".

One striking feature that has been observed is the singular evasion of individual responsibility. "No body seems to be responsible for any thing". Such a system naturally cannot create young administrators inspired by high ideals and enthusiasm. In actual day-to-day administration we find a series of approvals or sanctions becoming necessary for the execution of a project or programme. These approvals or sanctions delay action. "Very often delay is highly wasteful, retards achievement of the plan objectives and is based only on trivialities or downright ignorance".

There is also found disinclination to delegate authority to the subordinates. This naturally overburdens the top few and undermines the initiative among the lower cadre of officials. If autonomy is to be granted to the State enterprises, the Ministers' powers must be strictly limited or curtailed. "Parliament's reluctance to delegate powers in detail,......discourages ministers, secretaries and managing directors from delegating their powers".

Dr. Appleby finds that often proposals are mooted for the curtailment of the pay of higher officials. These proposals, according to him dampen and lower the morale of public servants. He remarks, "People must be willing to pay what adequate and successful government will cost". We beg to submit that there is no reason why a few individuals should receive disproportionately high salaries. Under the socialist pattern of society that we envisage the vast inequalities in the pay have to be gradually bridged up. Even the Taxation Enquiry Commission has suggested a ceiling on personal income. We cannot ignore the fact that there should be upgrading of the salaries from the present low levels.

In some enterprises there have been complaints of wastages and inefficiency. Particularly in some of the multi-purpose project areas we find jeeps and cars, often being used for private purposes by the officials. This evil has to be checked. "Further, Parliament which represents both the shareholders and the consumer should obviously have an opportunity of discussing all aspects of the working and the results of the authority when a budget

grant is made......similarly there should be an occasion for discussion when the yearly accounts are made". We may follow here the suggestions of Mrs. Hicks that when the accounts of state enterprises are given out, all the details of expenditure and income should be given without any window dressing.

Many of the personnel selected for community development blocks and national extention service schemes, seem to be incompetent to the tasks assigned to them and unaware of their responsibilities. Proper training of personnel is very essential for the success of these projects. Recently government have opened a number of training centres for the purpose of making these persons discharge their responsibilities. But there seem to be singular lack of enthusiasm among them. Unless they are motivated by high purposes and ideals we cannot expect much progress.

There have been many delays in the administration of a number of schemes and programmes. Often files have to pass through various channels and these are delayed unduly. A time limit may be fixed whereby a particular paper has to be disposed of. Further we agree with Dr. Appleby that a plan expediter or programme expediter with strong cabinet support and provided with sufficient staff of maturity should be appointed "to enable him to serve as umpire trouble-shooter, bottle-neck breaker, procedure reformer and structural adviser".

Proper facilities have to be offered for training technical personnel in engineering and polytechnical Institutes. More of these should be started to train increasing numbers. We do not approve with favour the present method of sending a large number of the candidates for training abroad and wasting our meagre foreign exchange reserves. Instead, if we start new institutions and staff them with experts from foreign countries, the benefit may be greater.

With the growth of the concept of the Welfare State and socialisation of industries, we require a new type of civil administrator. The demand for more technicians and officials who can deal with the public in a spirit of understanding and sympathy becomes urgent. In some countries we find the higher bureaucracy forming itself a sort of closed elite, a self-perpetuating oligarchy which Mr. Gladden compares to "philosopher-rulers" or as we compare to "supermen".

The danger from this thinking is the great peril that we may have to face in the future. We therefore plead for the cultivation of a new outlook by the higher ranks of administrative service, by the general public, the press and the people's representatives in parliament, so as to enable us to preserve democratic values of life. The greater our efforts to foster these ideas the greater will be the fruits reaped by us in years to come.

AGRICULTURAL TRENDS IN U. S. A.

By : **AMRIT KATYAL**

IN the dynamic world of ours many people will like to know how the present facts about United States are related to previous conditions, and what general trends can be discovered.

Agriculture in U. S. A. has been characterized by change. One of the greatest changes has been in geographic space, as European settlers spread westward across the continent.

Equally great changes have occurred through the use of science by farmers and as a result of continuous rising standard of living. Moreover, rural community organization also has undergone change as farm people have come to rely more on organized groups and less on practices of mutual aid.

The increased use of machines and of science in agricultural sector has been accompanied by changes in total population that lives on farms.

Each of these general trends will be described by presenting the facts involved. The effects of the geographic expansion upon farming are too well known, however, to need further discussion here.

Farm Production per Worker has Increased

Farm production per worker is now more than twice as much as it was 40 years ago as is known from the table :—

Farm output and Labour input
(Base 1935-39 = 100)

Year	Man hours worked	Output per man hour	Total output
1910	108	70	80
1920	110	80	90
1930	108	85	95
1940	95	115	110
1950	92	150	130
1955	90	155	135

The table shows that the number of man-hours worked in farms has been in the decrease for the past quarter century, but during that period, the total farm output has increased considerably.

The increase in total production and in man-hour production has come largely through higher yields. There has been relatively little increase in livestock number and in cultivated land area during that period. A subsequent section shows that the total egg production has increased because hens have been producing more eggs per year. Likewise, the total milk production has increased as each cow provides more milk now than formerly. Hens and cows have been bred for higher production and scientific feeding practices have become more general.

The yields of corn, cotton, potatoes and tobacco per acre have increased in the past forty years.

Increased Production Through Higher Yields

The greater farm production has resulted from the farmer's increased use of science and modern inventions. Perhaps most important has been the use of farm Tractors and labour-saving farm machinery. Other uses of science that have made a farmer's labour more productive include soil conservation practices, increased use of fertiliser, better plant and animal breeding, use of more effective insecticides, new canning and freezing procedures, and improved methods of packaging, storing and marketing farm products.

The increased yields per animal and per acre make a man's labour more productive per hour, for it takes no longer to feed the higher yielding animals and no longer to plant and cultivate an acre of corn or cotton that gives a higher yield than one that has a low yield.

With the better yields, more land has been needed inspite of an increasing population. The cultivated land in the United States has increased only 10% in the past half century, while during the same period the population of the country has doubled.

Farm tractors and other machines are more numerous

The increased use of farm machinery is best measured by the number of farm tractors increased from about 1000 in 1910 to 246000 in 1920, to 920,000 in 1930, to

1.5 million in 1940, to 3·8 million in 1950, to an estimated 4·0 million in 1955. The proportion of farms with tractors on them increased from 5% in 1920 to 50% in 1955.

Other farm machines have also increased considerably. This has been especially true of corn-pickers, milking machines, combines, threshers and side-delivery rakes. Mechanical cotton pickers, still relatively few in farms, increased rapidly between 1945 and 1955.

On the other hand, as mechanization has increased the number of horses and mules used on farms has come down as is clear from the table :—

(In Millions)

Year	Horses and mules	Tractors
1910	25·0	·001
1920	24·3	0·25
1930	19·0	0·92
1940	17·5	1·5
1950	9·5	3·8
1955	9·0	4·0

The decline in horses and mules since 1920 has released more than 65 million acres of cropland from production of horse and mule feeds to other uses. This is one-sixth of their total average in harvested crops. The continuing decline in farm horses and mules is releasing around two million acres of cropland each year for the production of food and fiber.

Farm Population has Decreased

The total population of U. S. A. has steadily increased and in 1950 it was a little more than 150 millions. The farm population on the other hand, decreased more than 4 millions between 1910 and 1950. This is a long-time trend.

In 1810 the rural population made up nearly nine-tenth of the total population, while in 1910 it comprised one-third of the total population and in 1950 less than one-fifth of the population.

Farm operators who worked off their farms 100 days and more during the year increased from 11% to 18% during the 15-year period ending in 1944. These part-time farmers are most prevalent near the industrial centres in the eastern parts of the country and along the Pacific coast. So it is evident that there has been a decrease not only in the proportion of total population that lives by farming, but also in the proportion of farmers who are wholly dependent on agriculture.

The number of farms in U. S. A. as a whole decreased from 6.45 million in 1920 to 5.9 million in 1945. This represents an average decrease of twenty thousand farms a year. The number has decreased still more during 1945 and 1955.

Farms have increased in size

The average size of farm in U. S. A. increased from 148 acres in 1920 to 195 acres in 1945 and 200 acres in 1955. Part of this increase was due to the enlargement of cultivated farms, and part of it to the inclusion in farm units of additional western ranch lands. The greatest increases in size of farms outside of the ranch country occurred in the Middle West and Great Plains, where mechanization has made advancement rapidly.

Farm ownership has been on the increase in recent years

During the half century from 1880 to 1930 the proportion of all farms operated by tenants increased from the time of one census to the next. Since 1930, however, the rate of farm tenancy has been in sharp decline. After rising from 25% in 1880 to 42% in 1930, it dropped to 27% in 1948 and 23% in 1955.

This drop in the farm tenancy rate since 1930 has been caused by some increase in the number of farm owners and a large decrease in the number of tenants, many of whom quit farming.

The number of hired farm workers, too, has been on the decrease in recent decades. It dropped from 2·9 million in 1910 to 2·5 million in 1948 and to 2·35 million in 1955. The greatest decrease occurred in the areas where farm machinery has become most widely used.

Levels and standard of living are rising

The farm living conditions generally have improved noticeably in recent years. Electricity has become much more wide-spread among farm homes. This development has resulted from the expanded services of the Rural Electrification Administration and of private utility companies. At present, approximately 90% of all farm homes have electricity compared with 33% in 1940, 13% in 1930 and less than 7% in 1920. The use of electricity for house-hold conveniences and for small operations abouts the farm is still to increase.

Rapid increases have also occurred in the proportion of farms that have other conveniences. Radios have shown the most rapid rise. In 1930 about 21% of the farmers had radios as compared with 86% today. There were also increases in the proportion of farm families with automobiles and running water and all-weather road.

The proportion of farm operations reporting automobiles increased rapidly from 1920 to 1930, then upto 1945 the proportion generally remained stationary. The figures for 1956, it is now believed, will show a marked rise.

The proportion of farms with telephones showed a marked decline from 1920 to 1940 and then a rise from 1940 onward. The decline preceding 1940 took place because the early rural telephone systems proved unequal to modern standards and so were gradually discontinued. Much progress in the quality of rural telephone service has been made in the past few years. It is believed that the 1950 census data will show a marked increase in telephones on farms since 1945.

Other measures of the rising level of living among farmers include the continuing in school of older children and the availability of health services. The proportion of farm children of 14 to 17 years of age who continued in school increased from 68% in 1930 to 75% in 1949 and 80% in 1955. The number of rural babies born in hospitals increased from 32% in 1940 to 73% in 1948.

The standard of living of farm families continues to rise as modern facilities become more readily available to them. The wide-spread desire of farm families for yet higher levels of living is vitally related to their readiness to adopt new and better farm practices. Increased farm yields have their greatest meaning in making it possible for farm families to improve their living conditions.

Rural Isolation on the Decline

The traditional isolation of the farm family has been greatly reduced in recent decades by the construction of good roads, the increased number of automobiles, and the wide-spread use of radios. Television, too, is found rather frequently on farms in advanced areas.

Isolation of families has also been reduced by the more active interest of farmers and their wives in farm organizations and in other group activities. Farmers are arranging for more and more of their needs through formal organizations such as farmer co-operatives, farm commodity associations, home demonstration clubs, and parent-teacher activities.

Farmers, accustomed to change, appreciate self-help.

The farm family in U.S.A. has seen many changes. On the other hand, many conditions continue about the same. The farm family still lives off to itself on the farm,

generally independent and self-reliant. Through the use of machinery and science farmers have increased their production, put their land to the best use, and are doing a better job of conserving the soil.

The increased use of science and of house-hold conveniences has resulted in large cash expenditures and less reliance on neighbours. As farmers' contacts have expanded, they have been meeting more of their needs through organized activities. Farmer-controlled organizations and co-operatives continue to grow.

Further changes will take place, farmers know; and they expect to continue to make adjustment within the frame work of representative government by elected officials. They want a responsible part in deciding public policies affecting them.

As farmers appraise their own situation, there are indications that the best services that have come to them are those that have helped them to do their own job of farming better. In general they believe that the principle of helping people to help themselves has been a good investment in this country. It offers, too, a constructive formula for brother farmers of other countries. The farmers of the United States are indebted to many countries for the early, basic advances in agriculture made by the human race. If there is now a way in which United States farmers can return the favour by exchange of information, it will be a satisfaction to them to do so.

THE ROLE OF CO-OPERATION IN SOCIAL ADVANCE

By: **Prof. G. D. H. COLE**

THE co-operative movement, in its long history of development in many countries, has shown itself remarkably adaptable to a wide variety of social and economic conditions.

In Britain, ever since the foundation of the Rochdale Pioneers' Society in 1844, it has developed mainly as a movement of consumers for the collective sale and production of everyday household supplies—above all of foodstuffs, but with a growing tendency to invade other forms of retail and wholesale trading and of manufacture in establishments collectively owned and managed by consumers' societies.

Adaptable to local conditions

It has developed in largely similar ways in a number of other Western countries—for example, in Scandinavia, in Germany, and in Switzerland. On the other hand, in many of the less developed countries it has taken root in the first instance mainly as a means for the supply of credit to small farmers or other small-scale producers; and in certain advanced agricultural areas, such as the prairie provinces of Canada, it has grown up chiefly as a producers' movement among farmers, large and small, for the collective purchase of farm requisites, such as seeds and machinery.

In yet other countries, industrial co-operation among producers has played an important part, through productive Societies largely owned by the workers employed —for example, in France and Italy and also, on a smaller scale, in Britain. In the United States one of the most successful co-operative ventures has been in the sale of petrol, chiefly to farmers, and there have also been interesting adventures in co-operative credit to university students and in co-operative home-making.

Wide Diversity

In almost every country, some form of co-operative enterprise seems to be adaptable to the local conditions. In recent years

some of the most interesting developments in many branches of co-operation have occurred in colonial areas—for example, in West Africa and in Malaya, including both consumers' societies for collective supply and producers' societies for marketing of rural products.

This almost unlimited adaptability of the co-operative method indicates the enormous scope that is open for its further development, especially in the countries that are economically less advanced. Forms of agricultural development range from the complete co-operative socialisation that exists in some, but not by any means all, of the kibbutsim in Israel to single purpose marketing Societies for particular products among farmers who cultivate their land or breed stock as individual entrepreneurs, as in Denmark or Canada.

Given this wide diversity both of methods and of social composition, it is not always easy to see what binds all the varying groups of co-operatives together into a common movement; for there are obviously great differences between bodies of consumers who are banded together in order to secure supplies of unadulterated goods at fair prices on a non-profit basis and societies of farmers or industrial producers who are seeking to market their products, whether individually or co-operatively produced, on favourable terms. There are, however, certain principles which all co-operative societies that can claim to belong to the great international co-operative movement are required to accept as the basis of their work.

Democratic Basis

First and foremost among these principles is the democratic basis of membership, which assures to each member an equal voting right regardless of the amount of capital he has invested in his society or of the amount of his transactions with it. This sharply marks off co-operative from all forms of capitalist enterprise; for in capitalist companies voting is weighted by the amount of risk-bearing capital held by the investor, and a few wealthy shareholders can outvote a large majority of small investors, so that the latter usually have no effective control at all.

Secondly, all real co-operative societies work on the basis of a limited return on invested capital, in the form of fixed interest and not of a variable dividend on capital depending on the amount of profit or surplus. This interest cannot, indeed, be fixed absolutely for all time: it has to be varied in accordance with the rates of interest prevailing for other forms of borrowed money in the country in question, but is kept as low as the conditions allow. Thirdly, wherever possible co-operative societies work on a basis of open membership—which means that anyone who wishes can join a Society on an equal footing with the existing members.

This principle can be fully applied to the consumers' societies which dominate the movement in Western Europe: it cannot be applied in the same way to the producers' societies, which must limit their working numbers to the members they are in a position to employ with the capital resources they possess and with the markets open to them. But here too the principles of equal membership and democratic control are applicable, and mark co-operative sharply off from capitalist enterprise.

Relations with State

In most countries it is a matter of pride to co-operators to keep their movement fully independent of control by the State or by any outside body. But this is not always possible. In the totalitarian countries the co-operative movement is inevitably subjected to different forms of state control which co-operators in advanced Western countries would decisively reject;

and in the less developed countries it is often necessary for the State to maintain some control, especially over the provision of credit through central agencies for co-operative banking—whereas in the more advanced countries the co-operative movement usually develops its own banking arrangements independently both of the State and of the capitalist banks.

Despite these differences it is a remarkable fact that, whereas both the trade unions and the labour and socialist parties have become divided into rival Communist and non-Communist Internationals, the International Co-operative Alliance has continued to include the co-operative movements of the Soviet Union as well as of the Western countries—though not without a good deal of friction arising out of differences of view concerning the proper relations between the co-operative societies and the State.

Current Trends

In Britain and in other Western countries, the predominant consumers' co-operative movement continues steadily to add to its membership and to increase the volume of its trade, but is subject to increasing challenge from private traders, and especially from large capitalist multiple concerns. Rising standards of living in many of these countries have been greatly altering the typical patterns of consumers' expenditure and have been reducing the proportion of total income spent on goods and services which the co-operative societies have equipped themselves to supply: so that, despite rising membership, a smaller percentage of members' total incomes has been spent at the co-operative stores.

It has also become less easy to raise co-operative capital as more alternative openings for the investment of small savings have become available - especially in loans to the State or other public bodies. This has slowed down the rate of expansion, especially of productive enterprises under co-operative control; and a good many friends of co-operation are wondering whether it may not become necessary, as the range of social enterprise grows wider, for Governments, as an alternative to nationalisation, to give aid to the co-operative movements to expand their activities into new fields of production and service. In general, however, co-operators are reluctant to contemplate anything that would involve any sort of state control over their movement and tend to prefer a slower rate of expansion that can be financed out of their own resources.

Dividend On Purchases

In Britain, one effect of the keener competition of private with co-operative trade has been a tendency for the rate of "dividend on purchases" - a characteristic co-operative device since Rochdale days—to fall off, so that the average rate of dividend is now not much above one shilling in the £ 1. In the past, the Co-operative dividend has been of great help to the housewife in meeting expenses that arise, not day by day, but at longer intervals. It still is so, but no longer to the same extent as when most wage-earnings left no margin above bare subsistence; and the fall in "dividends" is not altogether a bad thing when it is used for maintaining reserves at a level adequate to cover current and prospective needs for capital replacement.

The "dividend", however important it has been in attracting and holding members has always been a matter of expediency rather than of co-operative principle. Some societies, though few in Britain, have never used this device, and have preferred to devote their surpluses to the provision of collective services, especially in countries in which the public social services are inadequate, or even almost non-existent. Whether "dividend" on purchases should

or should not be paid depends on the social environment in which each particular movement is operating. It is an error to regard it as a matter of essential principle.

Political Activities

Finally, there is the question of co-operative participation in, or abstention from, political activities. Abstention has sometimes been regarded as a matter of principle, whereas in other cases - for example, in Belgium—co-operative societies have grown up in close alliance both with the trade unions and with the labour or socialist parties. In Britain, the co-operative societies for a long time held aloof from politics, until, in 1917, they formed a Co-operative Party of their own - a party which has since worked in close alliance with the Labour Party, but has not in fact prevented the co-operative societies from enrolling members of widely differing political views.

Whether the co-operative movement should or should not enter politics surely depends on the situation it has to face in each country at any particular time. The very successful Swedish movement is non-political: the no less successful British movement has been in politics for nearly 40 years with no adverse effects on its trading activities. There is room in the world for many kinds of Co-operation and for many different policies corresponding to varying local needs. What seems certain is that over the world as a whole a period of great co-operative expansion lies ahead of us, and that the movement can, above all, make a great contribution to raising standards of living and of productivity in the less developed countries in which it has been spreading fast in recent years.

PLANNIG IN KERALA

By: **M. A. OOMMEN**

KERALA State came into being on November 1, 1956. It is the smallest of all States in India, but with the greatest density of population. At last after centuries of disintegration and disunion Kerla has emerged united. Here we make a peep into the problems of planning in this new-born State.

The formation of the State and the formulation of the Second Plan coincide. For the Second Plan period from 1956-61 the outlay earmarked for Travancore-Cochin is Rs. 71.95 crores. We have to get our share for Malabar which is now merged with Travancore-Cochin to form Kerala, from Madras. On the basis of the outlay envisaged for Travancore-Cochin it can be estimated that a sum of Rs. 42 crores must be set apart for Malabar and Casarcode, thus bringing the total outlay to the tune of Rs. 113 crores.

Malabar is a backward area In education, electricity, medical relief and the like, Malabar still lags behind the rest of Kerala. Malabar economically is more a liability than an asset. The Planning Commission which is keen on reducing regional disparities should take these facts into consideration while coordinating the plans of the separate segments of this new State.

Population and unemployment are the burning problems of Kerala. If the Second Plan were to succeed these problems must be satisfactorily tackled. Kerala with all her educational advancement is economically poor. The standard

of living of the people should increase and that too appreciably. Industrialisation is the key to the problem. As a matter of fact the accent in the Second Plan is on industry. The abundant natural resources and man power of the State offer wide scope for industrialization including heavy industries. But the supply of power must be increased. Malampuzha, Pallivasal, Peringal Kuthu and Peechi do not provide the required amount of electricity for the State. Temperate climate, abundant water supply, good transport and communication facilities, a good harbour, infinite forest resources, titarium, chinese clay and the like—all go a long way to put Kerala on the industrial map of India. Though the State plan pays more emphasis on small scale industries, large scale industries also must be expanded if a solution is to be found for the problem of unemployment in the State. The coir industry is one of the major small-scale industries of this State which provides employment to over seven lakhs of people. This industry though recently rehabilitated on co-operative lines cannot be said to have been firmly grounded. The government should have a more realistic plan as far as cottage and village industries are concerned.

The problem of educated unemployment is acute in Kerala. Out of the 650 High Schools and 46 Colleges, more than 50,000 persons are sent out yearly to fill the ranks of the unemployed. This is fraught not only with economic problems, but even with social and political consequences. Many an educated graduate of this State is depressed and dejected after years of unemployment. A new orientation of education is badly needed. A way out of this must be immediately found. No stop gap arrangements would deliver the goods.

Next to unemployment, food problem looms large. Kerala is a dificit State. As the rate of population in this area is increasing at the rate of 23.7% a decade, it seems impossible to achieve self-sufficiency here. The population-land ratio of this State can be easily understood from the fact that for 136 lakhs of people, the area is only 14980 sq. miles. The N.E.S. Blocks and Community Projects should strain every nerve to step up food production in this State. At the same time small scale industries should also be developed as an adjunct to agriculture to provide employment to landless labourers and to farmers who will be without work for the whole year. The case for industrialization is particularly manifest here. A progressive diversion of population to industrial sector is but a sine qua non.

A stable Government is essential for the successful implementation of the Plan. Kerala badly needs a strong government which has the good of the people at heart. People will have to rise to the occasion to get their plans properly implemented.

LABOUR ORGANIZATION IN ISRAEL

By : **O. P. DAHAMA**

THOUGH Israel is a new country, it is marked by a high percentage of organised labour. Out of the total population of 1.7 millions about a million belong to labour organizations. There are four central labour organizations called as :—

(1) The Histadrut Haklalit Shel Haovdim B' Eretz Israel (General Federation of Jewish Labour in Israel), generally called as Histadrut.

(2) The Hapoel Hamizrahi Organization.

(3) The Polei Agudat Israel Organization.

(4) The Histadrut Haovdim Haleumim (National Workers' Organization).

The Second and Third are both linked to religious political parties. In establishing employment bureaus which regulate the labour market all the four organizations have cooperated. In some spheres e.g. the religious, party organizations have joined the Histadrut's Sick-Fund called as Kupat-Holim in Hebrew language.

These labour organizations are primarily non-political, although they have certain limited political objectives. As Histadrut is by far the largest as well the oldest, its institutions have served as models for others. One major difference is that Histadrut, as its full name implies, is "General"; members of all parties, even those with labour organizations of their own, can be found in Histadrut.

(1) **Histadrut** (General Federation of Jewish Labour in Israel)

Before 1920 several groups of scattered labour were working in Israel. The agricultural workers took initiative in inviting all other groups to meet to consider their situation. In the first Assembly of Jewish Workers about 100 delegates including men and women gathered in Haifa (a town in Israel). Most of them were young and all were immigrants, who came in this country after suffering in other countries, and wanted it to make their permanent home. As there were no facilities for education and health and there were no State programmes for reclaiming the land, establishing farms and factories etc., as the Government was foreign, they felt it necessary to help themselves and one another. The roots of the organization had come out earlier during the First World War days. Where work was available, groups shared out jobs among themselves. Others formed permanent settlements to farm land for their common benefit. Each of them paid a small fee every month, so that doctors and nurses could be engaged and a cottage hospital built. In the hard days of War, they had formed a cooperative to keep them supplied with grain and other essentials. But the Conference of December 1920 agreed to form a United Organization of all Jewish workers. It was named as the General Federation of Jewish Labour, the Histadrut.

Basic Principles : The basic principles of the organization are : non-exploitation, self-help and mutual aid.

Scope of activities : The Scope of its activities is much wider than that of labour organizations in other countries. It seeks not only to safeguard the interests of the working population, but even more fundamentally, to function as a colonizing agency, building the country's economic foundation. Its activities may be divided as follows :—

(1) The Trade Union (similar to those in other countries)

(2) Mutual Aid (Kupat-Holim and other social security funds)

(3) Economic

(4) Culture, Education and absorption of new immigrants.

Membership : The membership of the Histadrut is open to all men and women regardless of race or religion, who earn their livelihood by their own labour without exploiting the labour of others. The organization includes three quarters of all workers in Israel, uniting in a single organization skilled and unskilled workers in agriculture, industry, building, in clerical work and the liberal professions. It covers more than 90% of total working population.

A worker joins it directly and through it becomes also a member of the Union

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The present article is from the author's Economic surveys in Israel conducted in 1956 on U. N. O. scholarship.

appropriate to his occupation. Membership fee is paid on a sliding scale according to income, ranging from 4% to 5% of wages. If the wife and husband both are working both pay separately. This fee is distributed over the working of various branches. In 1955 it was distributed as follows :—

Workers' Sick-Fund	41 %
Organization	38½%
Social Welfare	8 %
Invalidity Fund	3½%
Old Age Pension Fund	3 %
Strike Fund	2 %
Widows and Orphans Fund	2 %
Work Fund	2 %
	100 %

In this way the worker is not worried about any such help or difficulty and about 62.5% of the fee is returned to him in the form of social and medical services.

Structure

It is a democratically run organization with elected institutions at every level. The basic unit is the Works Committee elected in every enterprise. All Histadrut members in each district elect the local Histadrut branch, the labour Council, while each Union is governed by a council elected by union membership. The supreme institution of it is the General Convention, whose delegates are elected by the entire Histadrut membership. The Convention elects a Council to act as the highest body between Conventions, and the council in turn appoints the Executive Committee which deals with current affairs. Elections are conducted on a proportional basis and any group of members may submit a list, but lists are generally associated with national parties representing a wide range of opinion.

The Executive Committee comprises of about 58 members to direct the day-to-day routine of all departments. The 14 departments are – Trade Union Department, Education and Culture Department, Mutual Aid Department, Arabs Department, Vocational Training Department, Organization Department, International Relations Department, Employment Department, Finance Department, Central Press Department, Legal Department, Statistics Department, Municipal Department, Tourists Department.

Hevrat Ovdim: In 1923 the Convention of the Histadrut decided to form a Company and got it registered with the Registrar of Co-operatives in 1924 under the name of "The General Cooperative Association of Jewish Workers in Israel" called as Hevrat Ovdim. Literally it means "The Common Wealth of Workers". Its purpose is to unite on a co-operative basis the Jewish workers in Israel, in all professions; to organize, develop and expand the economic undertakings of the workers' community in all branches and settlement and labour, in town and country, on the basis of mutual aid. For achieving these ends the Company is empowered to engage in all tasks for the preparation of the soil for settlement, to dig, to clear stones, to drain, to ditch, to fence, to sow, to afforest, to fell trees, to improve the fields, to introduce mechanical irrigation, and to make soil ready for settlement in all other ways; to found, develop, manage, expand, plan and acquire industrial plants, workshops, factories in all branches of manufacture; to engage in all types of contracting work, building, housing and public works; to establish shops and stores for the sale of produce; to acquire the means of transport and to establish banks and credit institutions.

For these purposes it is divided as follows :—

1. Agricultural Settlement,
2. Agricultural Marketing,
3. Consumers' Co-operation,

4. Finance and Insurance,
5. Transport and Consumers' Cooperatives,
6. Building and Public Works,
7. Housing,
8. Industry.

Trade Union Activities of Histadrut :—

There are about 30 national Trade Unions like the Agricultural Workers' Union, Building Workers' Union, Union of Government Employees, Clerical Workers' Union, Musicians' and Variety Artists' Union, Doctors' Union, Food Workers' Union etc. and the members are assigned to one, soon after they join.

Unlike most countries, Israel's *Employment Offices* are run by the Labour Movement. However the Employment Bureaus are subject to supervision by Israel Ministry of Labour, which also provides a substantial part of their budget.

Wages and Conditions: Wages are composed of four main elements: (1) the basic wage, (2) cost of living allowance (3) family allowance and (4) seniority allowance. The basic wage is graduated according to skill. To protect earnings against fluctuations in prices, the Histadrut secured for all workers a sliding COST OF LIVING ALLOWANCE, which is adjusted every three months to correspond with changes in the official price index. These two factors make up most of the wage, but there are also family allowances according to the number of dependents, and seniority allowances rising with length of service. Generally the monthly pay of workers in Israel varies from IL 200 to 350. (One IL- i. e. Israeli Pound = Indian Rs. 2/12/ but in purchasing power one IL is equal to one Indian Rupee).

Wages and conditions of work are defined in collective agreements which the Unions negotiate on a national basis or with individual employer. Collective agreements cover a high proportion of all Israel workers, and in regard to conditions such as annual holidays and accident pay, which are guaranteed by law, many agreements grant benefits in excess of legal minimum. The benefits provided in agreements are secured through regular monthly payments by the employer to a provident fund or insurance fund, from which the worker draws the sums to which he is entitled. Collective agreements provide for :—

An 8 hours' day and 47 hours' week.

Engagement of workers through the labour exchange.

Paid annual holidays.

Sick leave with pay.

Maternity leave.

Fair dismissal practices and compensation on dismissal.

Employers' contributions to the workers' Provident Fund, and Sick-Fund.

Accident Insurance.

Mutual Aid Activities of Histadrut :—

All the welfare institutions are based on mutual aid; services are equal for all, but contributions are graded according to income. The main mutual aid institution is the Workers' Sick-Fund, known as Kupat-Holim. It is the largest health organization in Israel. It maintains 852 clinics in all parts of the country, and a net work of hospitals and ancillary institutions. It also maintains convalescent homes and conducts preventive services. Families of members are entitled to some of these services free, but may be insured for full rights by a small addition to the ordinary Histadrut membership fee.

Non-full Histadrut members like the members of the religious labour organizations or Arab Union members, also receive medical aid through Kupat Holim. It covers about 2/3 of the total population of the country. Its Finances come from allocations from Histadrut membership

fee, contributions from members, government and municipal grants (10%).

Economic Activities

Due to unsettled and unsecured situation of the country, the private capital was unable or unwilling to enter a particular field of activity in a particular geographical area at a particular time and so it was essential to solve this problem through labour's economic institutions. These institutions filled an economic vacuum and thus made an invaluable contribution to Israel's fortunes and welfare. These institutions are completely decentralised and each is operated by its own Board of Directors.

All economic enterprises affiliated directly or indirectly to the Histadrut are controlled through the General Cooperative Association of Jewish Workers (Hevrat-Ovdim). The activities under it can be sub-divided as follows :—

1. Agricultural co-operatives.
2. Consumers' Co-operatives.
3. Marketing co-operatives.
4. Industrial co-operatives.
5. Transport co-operatives.
6. Service co-operatives.

The important co-operatives concerned with agriculture are : *Hamashbir Hamarkazi* which acts as supplier for the co-operative and collective agricultural settlements and the urban and sub-urban consumers' co-operatives ; TNUVA Central agricultural Marketing Co-operative, which markets the agricultural produce (About 80% of the agri. produce) of Israel. Other organizations of Histadrut are Solel Boneh-a contracting Company, Workers' Bank for financing industrial enterprises, cooperatives and agricultural settlements; NIR for providing long term credit, HASSNEH an Insurance Company, SHIKUN a company for making houses in urban area and another called as Neve Oved for rural area.

Culture, Education and Absorption of New Immigrants

Many languages and traditions, different levels of education and varied social conceptions came in this country with 0·8 million immigrants who came after 1948. Over 0.3 millions of these have joined the Histadrut. The guiding purpose of the Histadrut's cultural work is therefore to strengthen the feeling of unity among all sections of its membership, to share its social values with the new comers and make them feel equal citizens in the labour movement.

The first step is a **common language** and for it Histadrut runs thousands of classes, arranges special courses, and publishes a special newspaper in simple Hebrew.

For general members it publishes a daily newspaper, "Davar", maintains its own publishing houses, a professional theatre and other institutions. Numerous workers' choirs and orchestras, teams for folk dances and singing, study groups in a variety of fields, etc. are assisted by the Histadrut cultural Centre, which also provides elementary, secondary and higher education for adults. In outlying settlements social life largely centres round lectures, films, and visiting theatrical companies, sent out by cultural Centre, which helps in this way to keep contact between the settlers and the rest of the labour movement. Similarly for sports there is an organization called as HAPOEL which has more than 300 branches in the country and it is a member of International Workers' Sport Organization.

OTHER ACTIVITIES

Working Youth Organization :— It is known as NOAR OVAD. It protects needs of working boys and girls, supervises their conditions of employment and maintains schools for vocational and general education after working hours. Through Youth Clubs, Scouting and cultural activities, it imparts the ideals of the labour

movement, especially agricultural pioneering. About 60 settlements have been founded by these youths. Its membership is over 50,000.

Women Workers' Organization:—While participating in general Histadrut activities, women members which form about half of the total represent through the working Women's Council, which includes both working women and house wives. The council encourages the participation of women in public life and protects the interests of women in the political, economic and social spheres. It also maintains an extensive programme of practical social work aimed at improving conditions of women and children and enabling women to give fuller expression to their capacities.

For children activities the council runs nursery schools, creches, closed institutions and holiday camps. The Council maintains a large number of mother craft guidance centres, while its instructors visit immigrant settlements to help women adjust to new conditions.

It also runs schools for boys and girls and also maintains vocational training centres to train women for seeking employment.

Arab Workers' Organization: For activities just like the Arabs who form about 8% of the population of Israel, have Israel Labour League. For rural development activities the Arabs have "The Arab Workers' and Peasants' Fund". The Arab workers are now admitted to Histadrut Unions and welfare institutions and the League concentrates on economic and social development.

The other three Labour Organizations namely the HAPOEL HAMIZRAHI ORGANIZATION having a membership of about 53,000 the POALEI AGUDAT ISRAEL ORGANIZATION membership 22,000 and the HISTADRUT HAOVDIM HALEUMIM membership 52,000 for some services like the employment of labour, medical aid etc. are affiliated to Histadrut. The working of these is almost on the lines of Histadrut.

"AGRICULTURAL EMPLOYMENT IN BANARAS DISTRICT, U. P."[1]

By: **NAGESHWAR SINGH**

(THE volume of agricultural idleness extends to a considerable portion of the year and it varies from family to family depending upon the circumstances of production. Irrigated holdings are more intensively cultivated and provide more employment and this fact is proved by investigation over 50 holdings in Banaras district. In order to increase agricultural income, this period of idleness is to be reduced to minimum by adopting certain measures, e.g., development of cottage and agro industries, scientific crop planning and distribution of land etc.)

ONE of the most important problems faced by the Indian farmer is the large volume of spare time he has throughout the agricultural year. In other words, a cultivator remains idle for a considerable part of the year on his holding. The period of

1. This article is based on writer's thesis entitled "Agricultural Idleness in Banaras district, (U. P.)" submitted for the degree of M. Sc. (Ag) in the Examination of 1955 in Agricultural Economics of Banaras Hindu University. The research was conducted during the years 1953-1955 under the able guidance of Dr. G. S. Lavania and Shree R. M. Singh.

idleness varies from holding to holding and from family to family depending on the type of soil, climate, facilities of irrigation and production and the size of holding related to the size of family.

There are two forms of idleness prevalent in agriculture - one is enforced by agricultural cycles and the other is due to various causes inherent in the circumstances of production. The seasonal character of agriculture offers peak employment followed by the periods of partial employment and total idleness, e.g., for preparation of seed bed, in sowing operations, irrigation, harvesting and threshing, the cultivator sometimes, has to hire additional labour, while there are periods when he cannot fully employ even his family labour.

Layout of Experiment

Banaras district, situated in the Gangetic plain comprises of four Tahsils, namely, Banaras, Chandauli, Bhadohi and Chakia.

Each of these tahsils is sub-divided into parganas. According to convenience of transport, three villages from Tahsil Banaras, three from Chandauli and two each from Bhadohi and Chakia have been selected for the purpose of field investigations. With due regard to variations in circumstances of production, social standards and also distance from village to village, enquiries have been made from each tahsil. Survey method has been employed for conducting such enquiries. The investigations are exclusively for employment of family labour (the cattle labour excluded). In all, fifty holdings have been studied.

In Banaras district, the caste system prevents the higher caste to work in the field, in such a case the available unit has been included in the total units supplied by the family whether persons work or sit idle. In order to verify the replies given by the holder, agricultural calendar for the villages has also been prepared. The total employment is based on the operational cycles per crop and per field.

Investigations

The average size of family over 50 holdings under investigation works out to be 5·7 and the average supply of labour units available for an average family amounts to 2·20 per day.

The following table summarises the duration of average employment of families over different size of holdings.

TABLE I

Tahsil	Employment (Number of days)				
	Upto 5 acres.	Between 5 to 10 acres.	Between 10 to 15 acres.	Above 15 acres.	Average employment.
Banaras	161	176	221	225	195
Chandauli	178	180	214	230	201
Bhadohi	185	203	210	—	201
Chakia	—	181	220	226	209
Average	175	187	217	227	202
Average percentage of employment in year	47·95	51·24	59·46	62 20	55·35

The period of employment also varies from irrigated to unirrigated holdings. The following table bears ample evidence for the same :

TABLE II

Average employment over irrigated and unirrigated holdings investigated for Banaras district.

Tahsil.	IRRIGATED.			UNIRRIGATED.		
	Average size of holding, in acres.	Employment in days.	Main crops.	Average size of holding in acres.	Employment in days.	Main crops
Banaras	3.5	230	Payddy, Sugarcane, Potato.	8.0	165	Wheat, Maize, Kesari, Sesamum.
Chandauli	5.0	299	Sugarcane, Paddy, Potato.	10.0	220	Kesari, Wheat, Bajra, Jowar
Bhadohi	2.5	220	Wheat, Barley, Maize, Pulses.	6.0	144	Maize, Wheat, pea, Bajra, Mustard.
Chakia	6.5	265	Paddy, Potato, Sweet-Potato.	9.5	180	Kodon, Sawan, Lentil, Gram.

Conclusions

From table II it is evident that on irrigated holdings the employment is at least 36 to 53 percent more than what we have on unirrigated holdings.

Table I obviously explains that the duration of employment increases with the size of holding but per acre employment for smaller holding is more than for the bigger holdings as the intensity of farm operation is higher in the former case. The following calculation works out the correlation between the average size of holding and employment.

TABLE III

Karl Pearson's correlation co-efficient between average size of holding and employment.

Size limits.	Calculated average size of holding.	Average employment in days.
Upto 5 acres	4.0 acres.	175.
Between 5 to 10 acres.	7.5 ,,	187.
Between 10 to 15 acres	11.5 ,,	217.
Above 15 acres.	18.0 ,,	227.

Applying Pearson's Correlation Co-efficient formula for Table III.

$$r = \frac{\Sigma xy}{n\,\sigma_1\sigma_2} = \frac{\Sigma xy}{n\sqrt{\frac{\Sigma x^2}{n}}\sqrt{\frac{\Sigma y^2}{n}}}$$

where r stands for correlation co-efficient formula.

Σ " " summation.

$\sigma_1\sigma_2$ " " standard deviation for x & y series respectively.

n " " number of items.

x " " deviation from average in x series

y " " deviation from average in y series.

Hence, we have $r = \frac{+422.48}{4\sqrt{\frac{108.24}{4}}\sqrt{\frac{1803.00}{4}}}$

$= +0.95$

+0.95 indicates a very high degree of positive correlation implying that the average employment increases or varies with that of the average size of holding.

Recommendations

In case, the conditions of agricultural masses are to be improved there should be provision for adequate employment for families, since more employment means increased income, thereby a rise in the standard of living and possibly an adequate saving to accumulate capital for successful management of farm business.

The following recommendations are made in order to reduce the period of idleness to the minimum possible extent.

(1) The provision of secure and adequate facilities of irrigation which would provide scope for double and treple cropping and keep the family busy for a longer time, is absolutely necessary.

(2) Scientific crop planning may be resorted to in order to keep the land green for the major part of the year.

(3) Subsidiary employment by developing cottage and "Agro-industries" for which facilities such as tools and implements, power and supply of raw materials and facility of marketing are essentially needed, should be encouraged.

(4) Redistribution of land subject to ceiling on the size of holding may also be taken up—first on voluntary basis and later under some legislation.

(5) Decentralised growth of industries should be promoted and simple processes may be distributed to a number of neighbouring villages.

KNOW THE PLANT DIET

By: **K. L. MUKHERJEE**

ALL living organisms need food for their growth and as a source of energy. The kind, form and mode of taking this food by animals and plants although differ, yet astonishingly the fundamental needs for the nutritive chemical elements remain to be the same and any reduction or omission of these in the diet results in decreased growth, structural abnormality or death of the organism. Animals live on plants while plants, the cook for animals, synthesize food for their own use and apparently for animals, from the inorganic constituents of the atmosphere and soil. In short, plants serve both as the builder of the ready-hand energy food for animals and as the intermediary between the original inorganic-food reserve of mineral elements, the soil and animals. The appreciation lies in the fact that plants make a

selective absorption of the elements present in the soil, the injurious ones being carefully strained out and the products can therefore be safely taken by animals under normal conditions (although exceptions of plant-toxicity are not rare).

In search for the chemical nutritive elements necessary for the normal growth of plant, it has now been proved that atleast the following ten major elements (needed in greater amounts) are essential : Carbon, Hydrogen, Oxygen, Nitrogen, Sulpher, Phosphorus, Potassium, Calcium, Magnesium and Iron. Apart from these, five minor elements (needed in smaller amounts): Boron, Manganese, Zinc, Copper and Molybdenum, are also equally indispensable. Recently Aluminium, Silicon, Cobalt, Nickel have also been added in the list of essential minor-elements.

Leaving aside Carbon, Hydrogen and Oxygen which are obtained from the atmosphere and water, the rest of the elements are invariably from the growing medium which may either be present as a natural source or may be supplemented by an external supply.

A judicial judgment of the proper diet of a particular crop is of utmost importance for scientific agriculture. Any miserly application may bring hunger signs in crops and will not give the desired yield, while extravagancy may cause a luxury consumption of the nutrient supplied without any proportional increase in yield and thus uneconomical. The common plant nutrients used by our farmers are cowdung, farm-yard-manure, compost, green-manure, oilcakes, factory-mud, ammonium sulphate potassium sulphate, ammonium nitrate, potassium nitrate, superphosphate, bone-meal and many others. These fertilizers and manures singly are rarely being able to meet all the requirements (leaving a few exceptions) of the plants and hence a thorough knowledge of the amount of nutrients supplied by each is needed at the outset so that a regulated diet depending on the necessity of the crop, and condition of the soil etc. can be preplanned. But this does not solve our problems. The amount of nutrients originally present in the soil, amount available to plants and its fixation in the soil after fertilizaton thus rendering them unavailable should all be considered with due importance to each while finalising the fertilizer budget and for a proper soil management.

The nutritional composition of the various fertilizers and manures is readily available from their suppliers, Govt. Agriculture Department reports, Soil Regional Laboratories and in any standard text book, but the nutrients actually present in the soil and amount available to plants are difficult to ascertain. The total amount of nutrient present in the soil can be determined by a complete chemical analysis of the soil but one should always bear in mind that the total amount present is never available to the plant and an appreciable amount remains stable or unreactive and is of no immediate value in nutrition, at the same time it remains as a potential reservoir and later slowly breaks down and eventually contributes to the available soluble nutrient fraction.

To ascertain the available nutrient status of the soil, chemical, biological and biochemical methods have been adapted. The power of nutrient extraction by plants has been chemically imitated by subjecting the soil to suitable soil extractants (e. g. dilute acetic acid and sodium acetate). Theoretically this is a 'quick' chemical test for assaying the immediately available soil nutrients but the extreme heterogeneity of the soil keeps space for much doubt for the reliability of the results. Use of plants instead of soil-extractants and analysing the same after growing into seedlings under controlled conditions have also been proposed (Neubauer's technique). Analysis of plant materials (foliar diagnosis) as an

index of soil fertility is gaining much ground during recent years: a separate consideration of this will be made later.

One of the standard biological methods is the diagnosis of the symptoms of hunger signs caused as a result of nutrient deficiency. Although different crops differ in their manifestations of these signs yet certain symptoms caused by the deficiency of some specific element appear to be universal. Nitrogen deficient plants, for example, are chlorotic, yellowish, stunted and woody, showing a tendency of drying up and plants with potassium deficiency show scorched leaves with dying at the tip and outer margins which often show a curled and crinkled appearance; while starvation of phosphorus leads to the appearance of abnormally dark green young leaves, but the stems and leaves usually get highly pigmented with purplish red, especially near ends of shoots; fruiting is delayed and vegetative growth is less than normal. During the last decade quite a number of publications and books have been published giving coloured plates showing the characteristic and readily recognisable abnormalities due to nutrient deficiencies. The method is handy and needs no elaborate equipments but an experienced eye as that of a 'plant-doctor' is essential. Another biological method is the bacteriological soil-plaque test by growing certain micro-organisms like Azotobactor on the experimenting soil. The growth of the organism is taken to be proportional to the level of soil fertility. Out of all these, the pot and field trials with the increasing doses of nutrient elements are considered to be more reliable and surer tests although time consuming, expensive and need more care.

Author's personal experience (Ph. D. thesis, Banaras Hindu University, 1956) has shown that chemical analysis of the growing crop gives a reliable picture of the soil fertility and indicates the thirst for the deficient element and at the same time less time consuming but needs a good chemical laboratory. For example, while working with the trace element nutrition of sugarcane, it was observed that the majority of the elements show an increasing tendency to accumulate inside the plant tissue with their increased fertilization. Thus the limits of minimum, poverty-adjustment, optimum and luxury-consumption levels can be arbitrarily fixed (ignoring the ratios of various ions) which serve as a ready-hand information of the healthy-state of the crop. It has also been observed by the author that leaf being the seat of many metabolic activities, variations in the leaves are more pronounced as compared to other plant tissues.

FORMATION AND DEVELOPMENT OF FRUIT

By: **MANMATHA ROY**

IT is no exaggeration to assert that fruit, known to man from times immemorial, occupies a position of considerable importance for its health-giving value. History says that it has nourished men through all ages. But to-day, to biologists the importance of fruit lies not only as a food but as a charming material for the study of life processes. They have studied the development of fruit under controlled conditions and have observed the phenomenon. They hold the view that in the short period of life time of fruit, from its early embryonic stage to senescence, it undergoes the same chemical and physiological transformations as other living things.

What is a fruit? The fruit is a matured ovary after fertilisation. Botanically, a fruit is composed of structures responsible for the reproductive function of the plant.

Usually fruit is known by the remains of some of the flower parts attached to it. We all recognise that Mango, Lemon, Orange, Banana etc. are fruits. But what are Brinjal, Tomato, Cucumber, Pea etc? In answering this question a layman and a botanist must differ. A layman could call them vegetables whereas a botanist would surely identify these as fruits. A grain of wheat or a kernel of maize, though known as seed, is also, in the botanical sense, a fruit. In this case the ovary wall has become thin and dry.

How **fruit is formed**? The fruit is formed as a result of fertilisation. To understand the mechanism of formation of fruit it is essential to study a typical flower. A typical flower (Fig. 1) consists of four whorls e. g. (1) Calyx, (2) Corolla, (3) Androecium, (4) Gynoecium. The calyx and the corolla are the outer whorls and they are accessory organs. The androecium and the gynoecium constitute the inner whorls and they are essential sexual organs. These two parts play the main role in fruit formation.

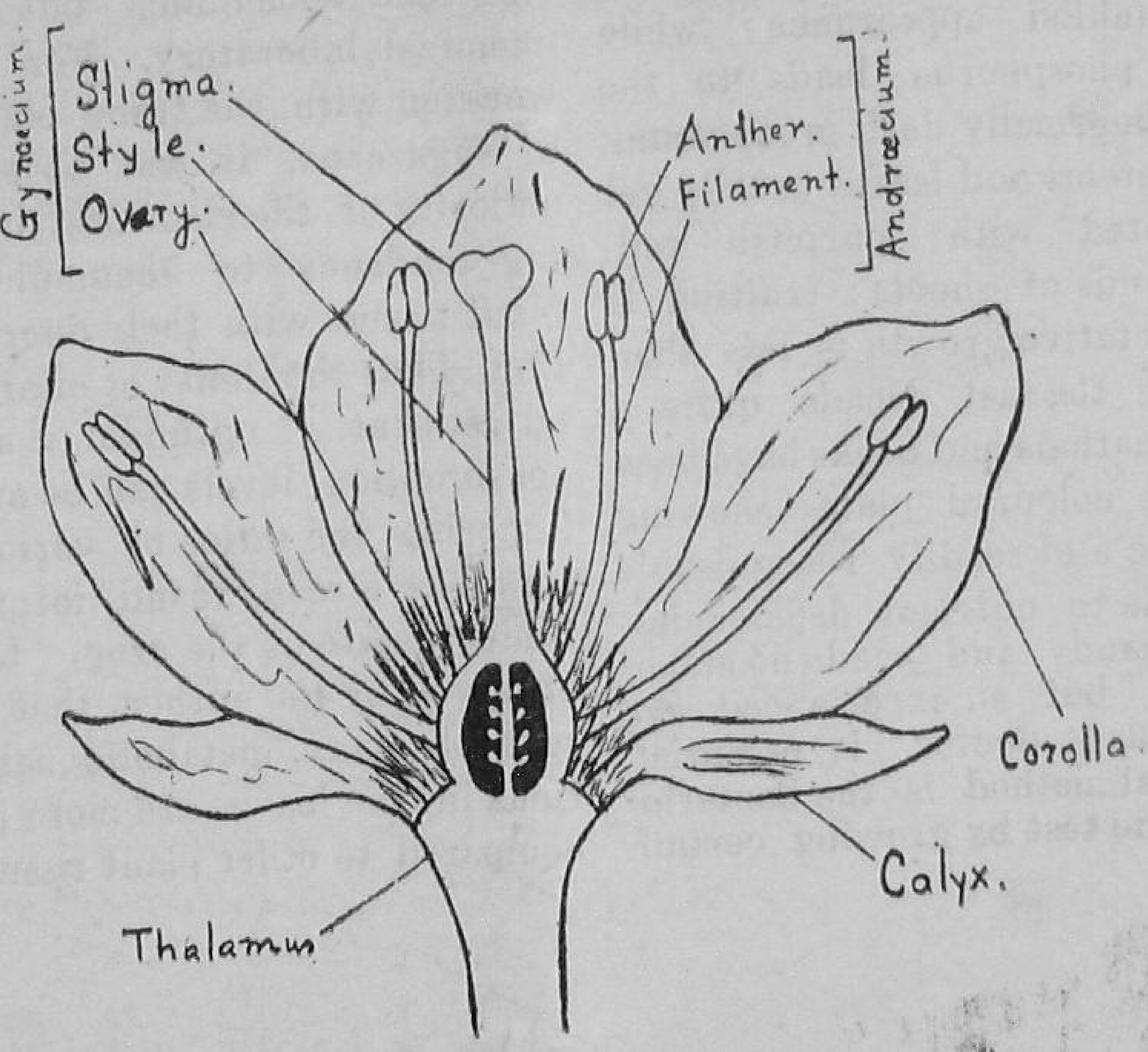

Fig-1. Parts of a flower.

The androecium or stamens-the male organ bears the pollen or sperm of the plant. A typical stamen consists of a filament bearing at its tip the anther which contains pollen grains. The pollen grain consists of a thick ceilinised outer covering termed exine and the inner thin cellulose layer termed intine. On maturity the grains are set free and serve to fertilise egg cell. (At first the pollen grain contains only one nucleus. When pollen grain germinates on falling on stigma two nuclei can be seen-(1) the vegetative nucleus and (2) the antheridial nucleus. This antheridial nucleus by a further division gives rise to two generative nuclei which represent the male gametes.)

The gynoecium or pistils-the female organ bears the ovum. A typical pistil

consists of stigma, style and ovary. The ovary contains the eggcell or ovule and within which embryo-sac is embedded in the nucellus. When the ovule is ready for fertilisation embryo sac contains eight nuclei. Three of these nuclei which lie at the micropylar end are collectively called egg-apparatus. The central cell of the egg apparatus is called the mega-gamete (ovum) and the two other lateral cells are called helping cells (synergids). Three nuclei grouped together at the opposite end are termed antipodal cells. The two nuclei at the centre constitute the secondary nucleus.

Process of fertilisation :— Fertilisation is the union of the male and female sex cells called gametes completely to form a zygote. In most cases one of these nuclei must be fertilised if a fruit is to be formed. The union of the gametes is accomplished by the transference of pollen grain from anther to the stigma. The process is known as pollination. (Self-pollination takes place in bisexual flowers only. But sometimes certain mechanism prevents self-pollination in bisexual flowers. In unisexual flowers cross-pollination is the rule and this is brought about by external agents like bees, flies, animals, wind, water etc.)

When the pollen grains fall on the stigma, they come in contact with a kind of sugary fluid, secreted by the stigma, called stigmatic fluid which helps them to germinate. Through the weak spot on exine the inner protoplast enlarges and comes out in the form of a tube. The pollen tube penetrates the stigma and style and grows down towards the ovule. The tube finally enters the ovary and reaches the ovule usually through the micropyle. When the tip of the pollen tube enters the micropyle, it bursts and delivers the two generative nuclei within the sac. One of these nuclei fuses with the ovum to form the zygote and this fusion is termed fertilisation (Fig. 2).

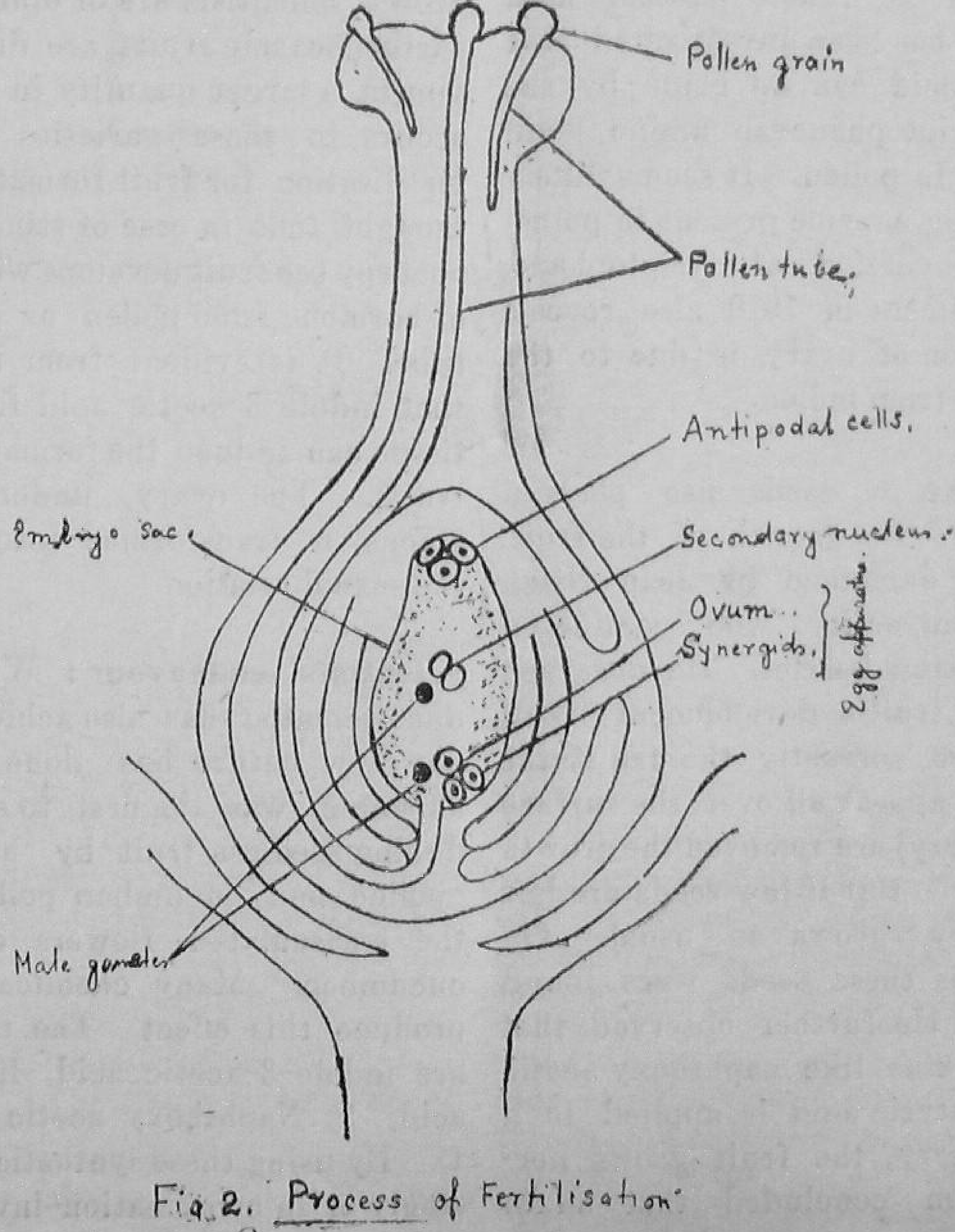

Fig. 2. Process of Fertilisation

The other nucleus passes to the centre and fuses with the secondary nucleus. After fertilisation, the ovary develops into fruit and the ovules into seed.

How ovary develops into fruit? It is only after fertilisation that the development of the ovary takes place and this results in what is known as 'setting' of fruit. Naturally question arises how ovary expands and ultimately develops into fruit. Experimental work has shown that the pollen introduces into the carpel some substance which initiates the change in the ovary (in some cases in the thalamus) which results in the formation of fleshy tissue of the fruit. The substance which initiates the change is the plant hormone or auxin which is present in different parts of the plant. One auxin which is commonly found in the plant tissue is indole-3-acetic acid ($C_{10}H_9O_2N$). It has been investigated that indole-3-acetic acid can be made by the oxidation of triptophane-an amino acid which is present in pollen. It seems likely that the oxidising enzyme present in pollen causes the conversion of triptophane. Fitting's experiment in 1910 also reveals that the expansion of ovary is due to the auxin extracted from pollen.

Auxin present in seeds also plays a prominent role in the growth of the fruit. This was clearly explained by Jean Nitch of Herbert University who conducted experiment on straw berries. He observed that during the fruit's development if all the seeds (more correctly the fruits-the tiny tufts that appear all over the surface of the straw-berry) are removed the growth stops completely. But if few seeds are left the straw-berry grows as usual. On chemical analysis these seeds were found rich in auxins. He further observed that if synthetic auxins like naphthoxy acetic acid or indolebutyric acid is applied to a naked straw-berry, the fruit grows normally. He then concluded that auxin present in seeds caused the straw-berry to expand.

Parthenocarpic fruit: The formation of fruit accompanies seed formation which is dependent on pollination. This is a natural phenomenon. But there are exceptions to this natural rule. Some fruits, for instance, the banana, lemon, seedless orange, grapes, cucumber etc. develop without forming seeds. The production of seedless fruits may result in absence of pollination (vegetative parthenocarpy). It has also been observed that the seedless fruits might be produced in certain cases, where there is pollination but no fertilisation (Stimulative parthenocarpy). In such cases, the pollen tube stops growing before it has penetrated into ovule. How can mere pollination stimulate the ovary to grow? Scientists are of opinion that these parthenocarpic fruits are due to auxin present in a larger quantity in the ovary than occurs in those varieties which require fertilisation for fruit formation. It is also thought that in case of stimulative parthenocarpy the fruit develops with the influence of hormone from pollen or growing pollen tube. It is evident from the experiment that indole-3-acetic acid found in plant-tissue can induce the formation of seedless fruits. The ovary, under this circumstance, is transformed into fruit without the sexual relation.

Scientists' endeavour: What nature has done scientist has also achieved by finding out how nature has done it. Jasuda, a Japanese, was the first to succeed in producing seedless fruit by applying orchid -pollen and cucumber pollen extracts to the emasculated flowers of tomato and cucumber. Many chemicals are now to produce this effect. The most important are indole-3-acetic acid, indole-propionic acid, B. Naphthoxy acetic acid and 2-4 D. By using these synthetic auxins, either singly or in combination-investigators have

succeeded in producing seedless tomatoes, traw-berries, bean, apple and cucumber.

Stages of development : Every fruit, from its early embryonic stage to ripening stage, has four stages of development :

First Stage: It is a stage of rapid growth of the fruit. Immediately after fertilisation, setting of fruit takes place-the fruit grows by the division of cells. Afterwards the cells stop dividing and begin to grow by expansion.

Second Stage :—In this stage fruit reaches its full growth and therefore this refers to as the adolescence period of the fruit. During this stage the cytoplasm of each cell moves out towards the peripherial region of the cell and the interior is occupied by vacuoles. Sugar accumulates in the vacuoles and the starch in the cytoplasm.

Third Stage :—This is the climateric (phase of respiration) stage. It is during the climateric or after climateric the fruit begins to ripe. The substances which are responsible for aroma and flavour of the fruit are formed and accumulate to maximum amount. It is therefore, the best time, when fruits are to be picked up for storage.

Fourth Stage :—In this stage-senescence —the fruit undergoes chemical changes which associate with the ripening of fruit. As the fruit ripening sets in, a water in-soluble protopectin decreases sharply and the pectin content increases. Pectins (gel forming substances) undergo the most characteristic chemical changes. Pectin consists of a long chain of galacturonic acid with methyl group (—CH_3) attached to the carboxylic group (-CooH). Methyl groups are split off and the remaining galacturonic acid chain is referred to as Pectic acid. After the fruit is finally ripe, the total amount of pectic substance declines. In some fruits (as in banana) starch is converted into sugar and in some others tanin disappears.

During this stage the green pigment (chlorophyll) is removed from the fruit and the other pigment becomes visible and the fruit takes the characteristic ripe colour. In some fruits (certain varieties of papaya, banana, mango, etc.) the green colour of the rind does not change after ripening.

Influence of Respiration & Temperature :—Both respiration and temperature have profound influence on the development of fruit. As for other living things respiration is essential for the life of fruit. Respiration involves the oxidation of one molecule of sugar with the release of 680 kilocalories of energy.

$$C_6H_{12}O_6 + 6O_2 \rightleftarrows 6CO_2 + 6H_2O + 680 \text{ K cls.}$$

The respiration, as measured by the uptake of oxygen, is high during the stages of cell division and gradually decreases during the enlargement and maturation of cells. After maturation of cells-there is a sharp rise in respiration rate followed by a decline. This phase of respiration has been called 'climateric'. It has been investigated that fruit is resistant to disease before climateric ; and after climateric as the fruit ripening sets in, fruit becomes susceptible to physiological diseases.

In storage, during ripening process, fruit physiologists have studied the effect of respiration on fruits. They studied the respiration of apple fruit. After 10% of oxygen respiration remains more or less constant. Below 10% respiration is affected, at 0% it is anaerobic and it promotes fermentation and causes accumulation of toxic substances. At higher p. c respiration is increased evolving more CO2 and the food matter is finished. For this reason for many fruits 10% to 12% of O2 is considered to be best for storage.

During climateric stage, respiration depends upon temperature. Low tempera-

ture tends to suppress or completely wipe out the climateric. If such condition arises fruit can not reach the ripening stage. If fruit is stored for a prolonged period at rather low temperature the ripening process may be affected adversely. Experiments were carried out to find out the temperature which will suit best for storage of fruits. According to Wardlaw and McGuire Banana should be stored between 53°F. and 55°F. and the ripening temperature should be 70°F. Rose and others state that the storage temperature of Banana should not be below 56°F and for ripening the temperature should be 62°–70°F. They also recommend 32°–34°F for sweet oranges and grape-fruits, 45°–58°F for limes and 55°–58°F for lemons.

DORMANCY IN SEEDS

Bu : **VIJAY KUMAR SHARMA**

MANY seeds with their embryos in good condition when placed under the ordinary suitable conditions of germination, viz, proper air, moisture and temperature, for a specific time, fail to sprout and if, they sprout, they die soon afterwards. This not only occurs in seeds but also in other plant parts, such as tubers, bulbs and spores. It is more troublesome in case of seeds than in any other plant part.

The period in which the plant or the plant part in all appearances does not grow is called the DORMANT or REST period. This period varies with the different species from few days to years. These dormant seeds germinate either when their dormancy period is over or when their dormancy is broken by any artificial method.

The following are the causes of dormancy in seeds. According to Crocker (1916) it may be due to one or another or combination of various causes.

1. The possession of seed-coats that interfere with the absorption of oxygen. The classical example is the seed-coat of Cocklebur (Xanthium).

2. The possession of immature embryos. When the seeds are separated from the parent plant, young plant in seed, we find that the seeds have not yet attained the full embryonic development. Common examples of this type are Tilia, Cotoneaster, etc.

3. The possession of embryos which require certain changes before the seed undergoes germination. It is usually found in case of Rosaceae family.

4. The possession of hard or thick seed-coats. Leguminoseae family has the maximum number of species which produce the so-called hard seeds. Hard seeds are also found in other families.

The dormant seeds play an important role in the continuance of the specie and specially a trait, as the different seeds germinate at different times of the year and they germinate when the conditions are congenial for their proper growth.

The dormant seeds have been attracting the attention of the workers for the last so many years. These seeds affect the germination and the yield of the crop adversely. Firstly, due to the undistributed germination the crop is not uniform. Secondly, the germination is irregular and the plants ripen at different times when some have fully ripened and others have not yet even flowered. More-over the farmer is unable to judge the proper time of harvest and in this way due to shedding of seeds in the field he gets low yield.

Many workers in different countries have tried different methods for overcoming dormancy in seeds of various crop plants, some with success and others without. The treatments followed by them are Mechanical: beating with a stick, shaking in a vessel with and without pebbles, scratching the seed-coat with a knife or a pin, passing them against a hard or a pointed surface, treatment with chemicals as different concentrations of Sulphuric acid, Hydrochloric acid, Nitric acid, Sodium hydroxide, Potassium hydroxide, Ammonium hydroxide, Acetone, Ether, Chloroform, Glycerine, Turpentine oil, Methyl and Ethyl alcohol, Sodium carbonate, and many other chemicals. Storage in cold and hot conditions and subjecting them to various degrees of temperatures as freezing, heating with and without pressure are also resorted to.

Much work has been done in foreign countries especially America and Russia. In India very little work has been done in this direction. A great deal of research work is required. Everybody is requiring food and the population is increasing at a fast speed but the resources are limited. So we have to increase the yield of the crops to meet our requirements. We can increase the yield to a remarkable extent by breaking the dormancy of seeds.

THE NEED FOR TREATED TIMBER, BAMBOO & THATCH IN A RURAL ECONOMY

By: V. R. SONTI

IN India today, and in the Far East, wood, bamboo and thatch are the source of many end-products used in every-day rural life.

From wooden ploughs and cart wheels to bamboo and thatch roofs, wood, bamboo and thatch are still the cheapest and most plentifully available raw material that can be easily fashioned into an infinite variety of end-products by a village craftsman with a few simple tools.

The idea of permanence has never been associated with timber, for, timber and other such material are organic substances which provide food and shelter for a host of insects and other organisms. White-ants, borer beetles and many types of fungii are the constant predators which threaten the very existence of a peasant. His ploughs, the timber beams of his roof, the wooden fence-posts that guard his property are all in constant danger of being devoured by these voracious hordes of wood-destroyers.

Even as early as 20 centuries ago the Hindus knew of many ways of protecting timber. Many timbers which are still sound, buried in the ground in Pataliputra over twenty centuries ago must have been given some form of preservative treatment, for they would not have existed to the present date, without some form of protection. Mention has been made of a mosque in Shrinagar which rested on wooden piles. These piles are at least 475 years old and are still in perfect condition, because they were burnt superficially. This external layer of carbon must have prevented many a voracious termite from attacking and devouring the unprotected interior of these piles. Some sort of an effort has always been made by the rural population to at least retard the attacks of wood-eating organisms, notably by the practice of coat-

ing the ends of unbarked seasoned logs with cow-dung or mud, so that the moisture was kept out. Since these organisms cannot live without moisture such logs were better protected than the untreated logs. Nevertheless, such methods of saving all sorts of timber, bamboo and thatch, are not of great use.

The science of Wood Preservation has, in this century, come to stay. Thanks to the valuable pioneering efforts of some men in India early in this century and the intense search carried out for suitable methods of preserving timber and other material, carried out by the Forest Research Institute, Dehra Dun, treatment of timber and other such material is utilised on a large scale commercially for the treatment of railway sleepers, telegraph and transmission poles, building construction timber and bamboo.

Yet, the rural Indian has not made full use of these developments in timber-treatment. He may not realise yet that he can treat timber, bamboo and thatch in ways which will give permanency and resistance to attack from all types of wood-destroyers, for 20 or 30 years where these same items lasted only 4 to 5 years without treatment. In a few years his treated timber will have paid for itself over and over again.

Timber-treatment methods are relatively simple. There are many types of treatment that can be carried out by anyone with a minimum of equipment. For instance, one of the simplest ways is the dipping of timber, bamboo or thatch in a tank filled with preservative solution. Such methods have been time-tested and yield excellent results.

The time has come for the large-scale use of timber-treatment methods. Just how such an aim can be carried out is a matter of Governmental-public co-operation. With the development of vast Community Projects a first step taken in the right direction cannot fail to produce valuable results, – in the time and labour saved and the growing confidence that can be placed in the use of the world's premier raw material – Wood. At the present moment there are many organisations which are anxious to give the benefit of their experience and technical services to such a plan, where the Government is ready to implement it.